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COMMENTS ON THE AMENDMENTS AND REMARKS

1. This is Applicant's Response to the Office's communications dated 7/9/03 and 9/27/03 [covers as Exhibits "A" and "B", attached; and hereinafter simply referred to "communication (dated 7/9/03)"].
2. Applicant thanks Examiner Palabrica for the careful attention to detail accorded to the above-identified application. Applicant acknowledges, and respectfully disputes [for the many reasons discussed in detail below], that Claims 1, 3-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Masaaki (JP-06018683), an unstated number of claims appear to be indirectly rejected under 35 U.S.C. 102(b) "as being anticipated by Takumoto et al. (U.S. 4,016,052)", Claims "8-30 (sic)" are rejected under 35 U.S.C. 103(a) as being unpatentable over Takumoto et al. in view of either one of Rudd (4,554,836) or Sugimoto (U.S. 4,768,381)", Claims "8-30 (sic)" are rejected under 35 U.S.C. 103(a) as being unpatentable over Masaaki (JP-06018683) in view of any one of Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439); Claims 1, 3-7 are rejected under "35 U.S.C. 103(a)" as being "obvious over Takumoto et al. (U.S. 4,016,052)" but with no second art ever being mentioned, Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph for purportedly "being indefinite for failing to particularly point out and distinctly claim the subject matter", Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph for purportedly "failing to comply with the enablement requirement", and Claims 1-20 are rejected under 35 U.S.C. 101, based upon flawed reference to other art ("FP" or "F+P") even in the light of the Examiner's knowledge of previously-submitted Declarations of fact and accompanying Exhibits. All of the Examiner's comments have been addressed and rebutted.
3. Applicant acknowledges, thanks the Examiner, and herein corrects Claim 14, which has been rejected under 35 U.S.C. 112, second paragraph, as being indefinite with reasons of specificity. It has now been corrected. In all cases of amendment, there is no new material added. The changes were only made in response to the comments of the Examiner, the wording and scope of the changes maintains the wording and scope of the original disclosure. The new claims and amendments are strictly composed of the language of the specifications and claims of the original disclosure. In each case, wording and scope of the addition maintains the wording and scope of the original disclosure.

4. Furthermore, regarding Claims 1-20, there is no additional cost or fees since there are now three independant claims and 20 total claims, and there is no change in claim number.

5. The invention at issue in this case, '480, and claimed by Claims 1-20, is generally speaking a vibrating electrode composed of a metal such as palladium which has the unique property of internally filling ("loading") with hydrogen, as a sponge fills with water. The 'vibrational electrode' is monitored for its natural frequency to reveal information about the electrode, specifically for information about "how much" hydrogen is within the electrode. This *in situ* monitoring occurs non-invasively and without disturbing the reactions - which are features of great and significant utility. NOTA BENE: The loading is very important because the hydrogen is a "fuel" used to produce a desired product. As the original specification and claims [Appl. 07/371,937 and now '480 as a Continuation] teach, the invention solves the long-standing problem of monitoring the electrode. Monitoring, such as measuring the loading of such an electrode, used to be complicated and invasive and has actually involved stopping the reactions underway, then electrically uncoupling the electrode, "thereby not only stopping the reaction, but also cross-contaminating both the cathode and the laboratory" by physically removing the electrode, drying it off, and actually weighing it on a scale -- before returning it to the disrupted electrical circuit. With Applicant's invention, it is unnecessary to interrupt the electrical circuit. Means are provided to vibrate the electrode and, simply put, the 'vibrational cathode' is monitored to reveal information about the electrode. This monitoring occurs remotely and non-invasively and without disturbing the reactions - features of great utility.

These are novel and non-obvious features of obvious great utility.

Based upon the Examiner's comments the claims of record have been rewritten and amended as Claims 1-20 which fully and completely distinguish the invention over the cited references. These claims respectfully are submitted and are patentable over the cited references because:

- i) the claims recite novel structure and thus are distinguished physically over every reference [Sec. 102], and
- ii) said physical distinction effects new and unexpected results, thereby indicating that said physical distinction is unobvious [Sec. 103].

6. Applicant acknowledges the Notice of Patent Drawing Objection. New drawings will be filed after allowance.

Regarding Receipt of the Cited Art

7. Applicant acknowledges receipt from the Examiner of 7 patents [6 from the US, 1 foreign and perhaps partially translated] and 22 additional references. Applicant notes for the record that, the foreign Patent and the US patents were (again) initially withheld by the Examiner, who thereafter gave the Applicant only 30 days to respond. This might have the appearance of impropriety in the light that the patent was in Japanese (?), and the tardive deliver follows an inappropriate abandonment (made when the papers and responses were sitting within in the Office).

The Office's references will be discussed in detail below. But the irrelevant, immaterial, and inaccurate nature of some of the references can be summarized thus: several of the Office's references are outdated, not relevant, and many are at variance with knowledge at the time the present application was filed. By contrast to the Applicant's diligence of qualifying his affiants, the record reveals that the Office has failed to even qualify one (1) of its cited reporters, book authors, and competing scientists as unbiased experts with respect to the subject matter of this application. The Examiner is aware that he is citing false reports and altered data, even with the US at War. So far, the Office communication again continues to ignore over 300 publications which the Applicant has sent to the Office.

Regarding the Communication

8. The Office's Communication dated 7/9/03 is inconsistent with the Office's previous actions (infra) or those of the Federal Court. The Examiner ignores Examiner Wasil's previous restriction, the Federal case which went to the Supreme Court of the United States, the numerous Declarations and Amicus Curiae Briefs of the Federal Appellate Court, and the record, and then blithely and falsely states:

The Office's Communication dated 7/9/03 does not comply with several of the Office's rules.

The Office's Communication dated 7/9/03 contains misstatements that are hereby corrected for the record.

Pursuant to In re Oetiker, Applicant hereby does respond in full to each of the Examiner's points with discussion in detail, below.

Pursuant to In re Morris, Applicant does respond with information including those skilled-in-the-art.

Pursuant to In re Grey, Applicant presents other evidence including those of operability and utility, including in said Declarations [thereby also consistent with In re Porter].

Regarding Applicant's Response to the Office Communication

9. Now in response to the Examiner's disingenuous comments, to rebut the Examiner's use of already-rebutted old, inaccurate, art, and Internet gossip, the Applicant submits, with this communication, copious Exhibits, peer-reviewed journals, and other art. These references are only necessary to rebut the inaccurate statements made by the Examiner [pursuant In re Grey, In re Oetiker] and are explicitly listed on the accompanying Forms PTO-1440. These Exhibits were not submitted earlier because they are less relevant than the previously cited references, and because they were not necessary before said inaccurate and disingenuous statements in said Office Communication. These references show that the concepts objected to by the Office have been accepted in the scientific community through peer review publication at the time the patent was filed, and that the invention worked as described and taught in the original specification and claims at the time they were filed. These prove that the present invention is possible as taught in the above-entitled application [Swartz, M., "Possible Deuterium Production from Light Water Excess Enthalpy Experiments Using Nickel Cathodes", Journal New Energy, 1, 3, 68-80 (1996)].

Also, in response to the Examiner's disingenuous comments, to rebut the Examiner, Applicant submits many Declarations, including the Declaration of Dr. Mitchell Swartz [hereinafter called the "Swartz Declaration"]. Dr. Swartz, is qualified as an expert with four degrees in electrical engineering from MIT, and an MD from Harvard. The other affiants have probative value, including Hal Fox ["Fox declaration"; BS physics and mathematics from the University of Utah in 1951, an M.B.A. from the University of Utah in 1972, and has published extensively in this scientific field; Editor of *Fusion Facts* (ISSN#1051-8738) and *Journal of New Energy* (ISSN#1086-8259)], Dr. Eugene F. Mallove, (hereinafter called the "Mallove Declaration"; ScD Harvard, BS MIT; former Senior Science Writer in the Press Office for the Massachusetts Institute of Technology (Cambridge, MA); Editor of the journal "*COLD FUSION*" (ISSN#1074-5610) and *Infinite Energy* (ISSN#1081-6372)], Dana Rotegard, Dr. Robert Bass, Drs. Melvin Miles, Brian Ahern and Dr. Raymond Kurzweil. Also, in response to the Examiner's disingenuous comments, to rebut the Examiner, Applicant submits the Amicus Curiae Briefs of Drs. Edmund Storms (2/21/01), Talbot Chubb (2/22/01), Eugene Mallove (3/24/00) and Hal Fox (2/21/01), and the Declaration of Straus (4/22/94). In previous correspondence with the Office, these Affiants have been shown to be qualified as experts with respect to the subject matter of this application.

ON PURPORTED NEW MATTER

10. The Examiner states;

"2. Applicant filed the current application as a continuation of parent application, S/N 07/371,937. He stated in a Request for Continuation letter, dated 12/28/00, which accompanied the application, that no new matter has been added in the current application. A copy of original specification was included as Appendix A to the current application. A review of the specifications of the two applications revealed that reference in the parent application to "electrochemically induced nuclear fusion reactions" (e.g., see p. A161, Appendix A) has been changed in the current application to "loading" (e.g. see p. 2 of the specification), "nuclear fusion cell" (e.g., see p. A166 of Appendix A) has been changed to "loading system" (e.g., see p. 6 of the specification), "cold fusion reactor" (e.g. see p.A167 of Appendix A) has been changed to reactor" (e.g., see p. 9 of specification), etc. "

THE TRUTH - Examiner Wasil, the Record, the Court disagree with the Examiner

The Examiner is either inaccurate or disingenuous. With all due respect, this is NOT new material. The "and" results from the previous Examiner, Mr. Daniel Wasil. The near identical specification and near identical drawings of Serial no. 07/371,937 have already gone through a restriction by the Primary Examiner Daniel Wasil. Mr. Wasil separated 07/371,937 into three inventions. As Exhibit C demonstrates, the record proves that this has been concluded. Invention 1 involves "an apparatus and method for producing a vibrational frequency of a cathode". Invention 3 involves "an apparatus and method for accelerating nuclear fusion reactions".

Invention 1 - "for producing a vibrational frequency of a cathode".

Invention 3 - "for accelerating nuclear fusion reactions".

The above-entitled invention is Invention #1.

Therefore, the wording and scope of the Continuation [480] fully maintain the wording and scope of the original disclosure and claims. Furthermore, and importantly, these minor corrections further respond to, and fully comply with, the Federal Appellate Decision 00-1107 [11/2000] in the parent of this application. Therefore, the Applicant requests that the Examiner reconsider because the Examiner's response is now demonstrated to be inconsistent with the Office's previous actions and inconsistent with those of the Federal Court. Simply put, the Applicant notes that Examiner has not shown any basis whatsoever to replace years

of communications between the Applicant and the Office, the Applicant and the Board, the Board and the Office, the named parties and the Federal Appellate Court, and the cited parties and the Supreme Court of the United States. and a well-documented record involving both the Board of Appeals and the Federal Court system and their Judgments, with the Examiner's latest *de novo* and *nunc pro tunc* demand for double patenting.

ADDITIONAL REASON

11. Does not the Examiner agree that double patenting is wrong, and is a path that the Applicant would be correct to refuse to take, even when the Examiner improperly leads, as in this case? Therefore, the Applicant requests that the Examiner reconsider this because it is wrong for the Examiner to create needless confusion in this patent application and Court record.

Applicant requests that the Examiner reconsider because it is wrong for the Examiner to even give the appearance of forcing Applicant into double patenting. The standards of review require the Examiner to explain precisely and substantively why he disagrees, and Applicant preserves the right of Petition and of complaint in a Federal Court.

12. The Examiner states,

"a) Unless the applicant, who can be his own lexicographer, declares that these two terms have identical meanings, this change in terminology from "nuclear fusion" to "loading" represents new matter. As such, the current application does not qualify as a continuation of the parent and therefore entitled only to the priority of its filing date, i.e., 12/28/2000."

THE TRUTH - This is NOT new material (vide supra) AND "nuclear fusion" and "loading" DO NOT have identical meanings

The Examiner is either innaccurate or disingenuous - or both. With all due respect, this is NOT new material (vide supra) AND "nuclear fusion" and "loading" DO NOT have identical meanings. Neither those skilled-in-the-art, nor the Courts, nor the Board, nor the previous Examiner (Daniel Wasil), nor Webster's dictionary agree with the Examiner and this gambit.

PROOF: The original specification of the above-entitled application discusses both loading and nuclear fusion. The "and" results from the previous Examiner, the Mr. Daniel Wasil. The near identical specification and near identical drawings of Serial no. 07/371,937 have already gone through a restriction by the Primary Examiner Daniel Wasil. Mr. Wasil separated 07/371,937 into three inventions. As

Exhibit C demonstrates, the record proves that this has been concluded. Invention 1 involves "an apparatus and method for producing a vibrational frequency of a cathode". Invention 3 involves "an apparatus and method for accelerating nuclear fusion reactions".

Invention 1 - "for producing a vibrational frequency of a cathode".

Invention 3 - "for accelerating nuclear fusion reactions".

The above entitled invention is Invention #1.

Therefore, the Examiner's latest *de novo* and *nunc pro tunc* requirement is exposed as an apparent demand for double patenting. Applicant requests that the Examiner reconsider because it is wrong for the Examiner to even give the appearance of forcing Applicant into double patenting.

Matters of hydrogen loading and nuclear fusion were discussed explicitly in the original specification, of which this application is the Continuation. Hydrogen loading and nuclear fusion are not new matter or new material. Electrochemistry is obviously used because of the aqueous solutions and applied electric field intensities, as is consistent with the literature, including that cited [Uhlig, H.H., "Corrosion and Corrosion Control", Wiley (1971), Bockris, O'M, J., K.N. Reddy, "Modern Electrochemistry", Plenum Press (1970), VON HIPPEL, A. "Dielectric Materials and Applications", MIT Press, (1954); and Von Hippel, A., D.B. Knoll, W.B. Westphal, "Transfer Of Protons Through 'Pure' Ice Ih Single Crystals", J. Chem. Phys., 54, 134, (also 145), (1971)].

The Applicant disputes the addition of new matter and is willing to go back to the Federal Appellate Court in 00-1107 with the Examiner to determine exactly what they meant if the Examiner disputes this. Applicant also preserves the right of Petition and of complaint in a Federal Court, and the standards of review require the Examiner to explain precisely and substantively why he disagrees.

13. The Examiner states,

"b) If, as stated by the applicant, that there is no new matter in the current application such that it qualifies to have the benefit of the filing date of S/N 07/371,937, then term "loading" is the same as "nuclear fusion reaction."

THE TRUTH - There is NO NEW MATTER

There is no new matter for the following absolutely clear reasons. The original specification of the above-entitled application discusses both loading and nuclear fusion. The "and" results from the previous Examiner, the Mr. Daniel Wasil. The near identical specification and near identical drawings of Serial no. 07/371,937 have already gone through a restriction by the Primary Examiner Daniel Wasil. Mr. Wasil separated 07/371,937 into three inventions. As Exhibit C demonstrates, the record proves that this has been concluded. Invention 1 involves "an apparatus and method for producing a vibrational frequency of a cathode". Invention 3 involves "an apparatus and method for accelerating nuclear fusion reactions".

Invention 1 - "for producing a vibrational frequency of a cathode".

Invention 3 - "for accelerating nuclear fusion reactions".

The above entitled invention is Invention #1.

Therefore, the Examiner's latest *de novo* and *nunc pro tunc* requirement is merely an apparent demand for double patenting. Applicant requests that the Examiner reconsider because it is wrong for the Examiner to even give the appearance of forcing Applicant into double patenting. Applicant preserves the right of Petition and of complaint in a Federal Court, and the standards of review require the Examiner to explain precisely and substantively why he disagrees.

14. The Examiner states,

"Cases a) and b) above are discussed separately below.

Case b): "Loading" is identical to "Nuclear Fusion Reaction"

THE TRUTH - Both will be discussed

With all due respect, this is NOT new material (vide supra) AND "nuclear fusion" and "loading" DO NOT have identical meanings. Neither those skilled-in-the-art, nor the Courts, nor the Board, nor the previous Examiner (Daniel Wasil), nor Webster's dictionary agree with the Examiner and his latest gambit which defies the record, science, and Webster's dictionary. Nonetheless, in arguendo, both cases will now be discussed.

RE: U.S.C.112 REJECTION, Second Paragraph**PURPORTED INDEFINITENESS**

15. The Examiner states,

"Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention."

THE TRUTH - There is Definiteness

It is disingenuous for the Examiner to claim there is indefiniteness in the light of the many missives with the previous Examiner, Daniel Wasil, and in the light of the peer-reviewed cited publication, and in the light of the Declarants, affiants, and Amicus Curiae who are skilled-in-the-art, and especially in the light of the federal court [In re Swartz 00-1107] which had no trouble understanding the invention.

"... (I)ndefiniteness in claim language is of semantic origin"

[In re Hammack, 427 F.2d 1384 n.5, 166 USPQ 209 n.5 (CCPA 1970)]

and indefiniteness is the opposite of definiteness. Applicant has fully complied with the definiteness requirement of the second paragraph of 35 U.S.C. §112. The original specification and claim adequately presented the claimed invention so that an artisan, or those skilled in the art, could practice it without undue experimentation [In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed.Cir.1988)].

Definiteness is a characteristic of a patent claim in which claim language makes the scope of the claim clear to a person skilled in the art to which the invention pertains [MPEP 2173, MPEP 2173.02, MPEP 2173.05(a)]). Pursuant, to MPEP 2173, Applicant claimed with particularity, and did point out and distinctly claim the invention. Applicant's claims are therefore definite because the claims are precise, clear, correct, and unambiguous to a person skilled-in-the-art and, therefore, there was definiteness because the specification did conclude claims particularly pointing out and distinctly claiming the subject matter.

Furthermore, the Applicant has corrected this pursuant to notification of the Examiner. There is definiteness because, pursuant to 707.07(d) the Examiner pointed out wherein the indefiniteness resided, and now the Applicant submits precise corrections which the Examiner suggested. Each and every one.

DEFINITENESS BECAUSE OF CITED ISSUES ADDRESSED

16. 35 U.S.C. 112, second paragraph requires the Examiner had to provide reasons why the terms in the claims and/or scope of the invention are unclear "in a positive and constructive way, so that minor problems can be identified and easily corrected, and so that the major effort is expended on more substantive issues." All definiteness issues are hereby addressed. If there are other issues with Claims 1-20, the Examiner is asked to with specificity and clarity further explain what the rejection is based on [Ex parte Ionescu, 222 USPQ 537, 539 (Bd. App. 1984)].

DEFINITENESS CORROBORATED DECLARATIONS

17. There is definiteness because, supplementing the detailed specification, the Applicant submits further corroboratory expert testimony [Ex parte Gray, 10 USPQ2d 1922, 1928 (Bd. Pat. App. & Inter. 1989)] including Declarations and Amicus Curiae Briefs --which must be reviewed carefully. The Examiner must accurately discuss the invention as it is actually taught in the original specification and claims. The claimed invention should be the focus of the definiteness requirement.

DEFINITENESS SUPPORTED BY THE CLAIMS

18. There is definiteness because the pending claims must be given the broadest reasonable interpretation consistent with the specification [In re Prater, 415 F.2d 1393, 162 USPQ 541 (CCPA 1969), also MPEP Section 2111 - Section 2111.01] and the specification stated the meaning of the terms in the claims [In re Zletz, 893 F.2d 319, 13 USPQ2d 1320 (Fed. Cir. 1989)].

Furthermore, there is definiteness because pursuant to 2173.05(a) the meaning of every term used in the claims was apparent from the prior art, cited art, and from the specification and drawings at the time the application was filed.

There is definiteness because the claims must each be given the broadest reasonable interpretation consistent with that which one who is skilled-in-the-art would reach [In re Morris]. In this case, it is corroborated by both the Declarations, Amicus Briefs, and peer-reviewed publications.

There is definiteness because the preamble of claim 1 recites the purpose of the process, and the process steps are able to stand alone (MPEP 2111.02).

There is definiteness because pursuant to 2173.05(b) the fact that claim language may not have been precise cannot automatically render the claim indefinite under 35 U.S.C. 112, second paragraph [Seattle Box Co., v. Industrial Crating & Packing, Inc., 731 F.2d 818, 221 USPQ 568 (Fed. Cir. 1984)].

There is definiteness because acceptability of the claim language depends on whether one of ordinary skill-in-the-art would understand what is claimed, and that is confirmed by the light of the specification, the Declarations, the Amicus Briefs, and the peer-reviewed publications [Ex parte Porter, 25 USPQ2d 1144, 1145 (Bd. Pat. App. & Inter. 1992)].

Additional Reason Overcoming The Examiner's Position : Definiteness Supported By Probative Reference

19. There is definiteness because Applicant provided (and provides again), in addition to the detailed specification, corroboratory probative reference in the form of Peer-reviewed Publications [e.g. Swartz (1992), Swartz (1996)] which prove understanding by one skilled in the art [Atmel Corp. v. Information Storage Devices Inc., Fed. Cir., No. 99-1082, 12/28/99].

**Additional Reason Overcoming The Examiner's Position - Definiteness
Prove By Other Rejections**

20. Applicant notes to the Examiner that there had to have been definiteness because the Examiner could not have made the rejection under 35 U.S.C. 102 of claims over the other cited art, had the invention truly been without definiteness. The fact that claim 1 was found by the examiner to be anticipated by any combination of the other cited Art, proves that the present invention obviously has definiteness.

21. The Examiner states,

Claims 14, 15 and 16 recite the limitation, "second mass". There is insufficient antecedent basis for this limitation in the claims because there is no "first mass" to provide reference for this so-called "second mass".

"Claim 14 has been corrected. The Applicant thanks the Examiner.

22. The Examiner states,

"Claims 1, 8 and 17 recite the limitation, "mechanically coupling said material." The claims are vague, indefinite and incomplete as to what the material is coupled to.

Claims 1 and 10 recite the limitation, "providing means to follow the frequency of said vibration." The claims are vague and indefinite as to what is meant by the term, "to follow.",

Several claims, Claims 1, 8, 10, and 17, have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite. However, Applicant has discussed this and it was understood by the Previous Examiner Wasil, the many Declarants, and even the Federal Appellate Court. For this reason, and for the additional reason below which demonstrate the Examiner is in error, the Applicant request the Examiner to be specific and explain why it is not sufficient, and what it is that the Examiner does not understand, given the clear statements in the original specification, claims, and figures, and the corroboratory statements of the affiants.

23. The Examiner states,

"Claim 1 recites a "process for producing a product using a material which is electrochemically loaded with a Second material." The disclosure is insufficient as to what exactly is this so-called "product." Based on the claim language, this "product" is not a material loaded with a second material because said loaded material is used to 'produce the "product." Based on the specification of applicant's cited parent application, i.e., S/N 07/371,937, the only possible "products,, that can be formed in the disclosed and claimed method are nuclear fusion products, specifically "cold fusion" products (e.g., see page A167 of the parent specification that is attached to the current 1 i application)."

The Examiner is disingenuous. With all due respect, this is NOT new material. The original specification of the above-entitled application discusses both loading and nuclear fusion. The wording and scope of the changes fully maintain the wording and scope of the original disclosure and claims. Furthermore, and importantly, these minor corrections further respond to, and fully comply with, the Federal Appellate Decision 00-1107 [11/2000] in the parent of this application. The submitted changes for entry are minor, and do fully comply with the Examiner's stated requirements, and are written so as to narrow the claims. The rewritten claims address all issues noted by the Examiner and they do not raise new issues or contain any new matter. The original specification of the above-entitled application discusses both loading and nuclear fusion. The "and" results from the previous Examiner, the Mr. Daniel Wasil. The near identical specification and near identical drawings of Serial no. 07/371,937 have already gone through a restriction by the Primary Examiner Daniel Wasil. Mr. Wasil separated 07/371,937 into three inventions. As Exhibit C demonstrates, the record proves that this has been concluded. Invention 1 involves "an apparatus and method for producing a vibrational frequency of a cathode". Invention 3 involves "an apparatus and method for accelerating nuclear fusion reactions".

Invention 1 - "for producing a vibrational frequency of a cathode".

Invention 3 - "for accelerating nuclear fusion reactions".

The above entitled invention is Invention #1.

Therefore, the Applicant requests that the Examiner reconsider because the Examiner's response is not demonstrated to be inconsistent with the Office's previous actions and inconsistent with those of the Federal Court. The Applicant requests that the Examiner reconsider so that the Examiner's response complies with, and is consistent with, the Office's previous actions and those of the Federal Court.

THE CLAIMS DISTINGUISH OVER THE REFERENCES UNDER 35 U.S.C. 102(b)

24. Claims 1, 3-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Masaaki (JP-06018683). Also, the Examiner states, "As discussed in section 7, applicant's claimed method of cold fusion reaction is practiced on an apparatus of non-cold fusion art that is identical to Takumoto et al. (U.S. 4,016,052)." For each rejection under 35 U.S.C. 102, the Applicant hereby does fully and completely specify the errors in the rejection and the specific limitations in the rejected claims which are not described in the prior art relied on in the Office's rejection. Applicant also explains how such limitations render the claimed subject matter novel over the prior art.

With all due respect, many of the cited references followed the present invention. The applicant notes that the application Serial no. 07/ 371,937 --of which the present invention '480 is a continuation -- was filed 06/27/89. The date of Masaaki is March 7, 1992. The date of Zang is Nov. 17, 1998. The date of Steinlechner is March 16, 1999. The date of Wang is March 5th, 1996. Attention is directed to the fact that the present application, '480, preceeds all of these; and therefore they are not relevant. Nonetheless, for argument's sake, and to demonstrate error in the Examiner's allegations, each will be discussed in detail.

Background: Masaaki (JP-06-018683)

25. The Examiner states,

"11. Claims 1, 3-7 are rejected under 35 U.S.C. 102(b) as being anticipated by JP-06018683. This reference discloses a vibrating electrode apparatus for room temperature . fusion comprising a palladium cathode that is resonantly vibrated. The vibrating cathode is electrochemically loaded with deuterium from an electrolyte containing said hydrogen isotope. "

THE TRUTH - Masaaki (JP-06-018683) Does Not Measure Loading

The Examiner is disingenuous and totally incorrect when using JP-06-018683.

First, the date of Masaaki is March 7, 1992. Attention is directed to the fact that the present application, '480, preceeds all of this. The applicant notes that the application Serial no. 07/ 371,937 --of which the present invention '480 is a continuation -- was filed 06/27/89 which is prior to cited art. Nonetheless, in arguendo, the applicant will now discuss the cited art in full detail to demonstrate

that even if it was timely, which it is not, it is not relevant to the present novel invention.

Second, Masaaki (06-018683) describes an oscillating electrode for normal temperature nuclear fusion which is very different from the present invention.

JP-06-018683 --as it claims-- is simply an apparatus where the purpose of the oscillation is to "expanded the reaction area". Masaaki has a deuterium tank (18), a "negative electrode" (1) of "pure nickel plate plated with palladium or titanium". Masaaki resonates the electrode to increase the surface area. Masaaki says "the loss in the transmission of the vibration is limited thereby promoting normal temperature nuclear fusion". In Masaaki, hydrogen gas is generated. In Masaaki, there is no loading, no discussion of loading, and no measurement of loading. Furthermore, in Masaaki, there is no measurement of frequency change of the vibrating electrode from loading, and no change in the frequency of the vibration. The vibrating cathode of Masaaki is used for a different reason and there is no measurement of loading. Masaaki resonates the electrode to increase the surface area. This is in contrast to the present application and invention where the loading occurs within the cathode and where the vibrations are used to measure loading. Thus, Masaaki (06-018683) is located quite far from the present invention, and it is improper to compare JP-06-018683 to the present invention.

26. The Examiner states,

"Applicant's claim language reads on the figures in JP-06-018683 as follows: a) "means to drive vibration" reads on line winding 10 ..."

THE TRUTH - The Examiner is not Accurate

The Examiner is disingenuous. Applicant's claim language does NOT read on the figures, or the text, or the claims, or the description, of JP-06-018683. In fact, the Examiner confuses simple differential equations.

Does "means to drive vibration" really read on line winding 10? No. In fact, in the case of the '480, a single pulse is given and then the impulse response is followed. This is a far cry from a fixed frequency motor used in Masaaki (06-018683), cited by the Examiner. In 480, the single pulse, which is the "means to drive vibration" enables a frequency measurement which is the response of the electrode. Thus, in 480, the single pulse and the subsequent frequency measurement enables measurement of the electrode loading.

The Examiner is Inaccurate about Simple Differential Equations and Their Solution

NOTA BENE: In differential calculus, the natural frequency(ies) is(are) called the homogeneous response. By contrast, in Masaaki (06-018683), cited by the Examiner, e.g. vide supra, the line winding 10, and the other features, create the particular (or driven) response which is dominated by the equipment of Masaaki (06-018683). In differential calculus this is called the driven (or particular solution) response.

Since the Examiner appears not to be familiar with the calculus, and since this is important (and well known to those skilled-in-the-art and most college students), the Applicant sends with this response, excerpts from a few books. The Examiner is expected to supplement this, since this is mathematics and truly requisite to all engineering.

The Examiner is referred to "Advanced Calculus for Applications, Second Edition" by Francis Hildebrand (1976). On pages 72 through 76, and also page 88, in the section entitled "Applications to Linear Differential Equations with Constant Coefficients", there is a discussion of the significant differences between forced vibrations of the cited art (oscillations actually, in said cited art) and the natural vibration of a loaded cathode as is discussed in the above entitled application.

The examiner is specifically referred to equations 28 through 37b which reveal these mathematics well-known to those skilled in the art.

In addition, the Examiner is referred to "Theoretical Mechanics: An Introduction To Mathematical Physics" (1929) by Joseph Ames and Francis Murnaghan. The examiner is specifically referred to pages 24 pages 124 to 139 for the well-known differences between harmonic vibrations (especially page 129).

In addition the Examiner is referred to "Analytical Mechanics" (1962) by Grant Fowles. The Examiner is specifically referred to pages 80 through 84 for that harmonic analytic physics which is well-known to those skilled in the art, but apparently not the Office. With respect to these harmonic motions resulting from restoring force, as discussed in the above-entitled application, the examiner is referred to pages 43 through 45. By contrast, with respect to forced harmonic motion discussed in the cited art, the examiner is also referred to pages 51 through 55.

The examiner is referred to "Calculus and Analytical Geometry" (1951, and 1960) by George Thomas Jr. The examiner is particularly referred to pages 895 through 900. There, it can be seen that even college freshmen, as well as those skilled in the art, should be capable of appreciating the differences between natural frequency and a driven response:

In summary, it is inaccurate for the examiner to substitute forced harmonic motion [with partial differential equations having a particular solution] and the above entitled application where there is a vibration characterizing the loaded electrode, which is observed by its natural frequencies.

Thus, the Examiner is referred to any elementary calculus book so that he may understand what is well known to any qualified engineer, and any scientist well-trained.

27. The Examiner states,

"Applicant's claim language reads on the figures in JP-06-018683 as follows:... b) "means to follow the frequency of vibration: reads on RF generator 11 that sets (i.e., "follows") the vibration frequency"

THE TRUTH - The Examiner is Incorrect Again

The Examiner is disingenuous. Applicant's claim language does NOT read on the figures, or the text, or the claims, or the description, of JP-06-018683..

Does "means to follow the frequency of vibration" really read on "RF generator 11 that sets (i.e., "follows") the vibration frequency"? No.

Again, simple calculus and elementary physics demonstrates that the Examiner is appearing hostile in stance, rather than being accurate.

In the case of the '480, a single pulse is given and then the impulse response is followed. The subsequent frequency measurement enables measurement of the electrode loading. This homogeneous response, again, is far from the driven system used in Masaaki (06-018683), inaccurately cited by the Examiner.

The Examiner cites the "RF generator 11" which the Examiner correctly states that "sets" the vibration frequency.

The Examiner is disingenuous when he metamorphoses this to claim that it "follows" the vibration frequency. In fact, Masaaki (06-018683) disagrees with the Examiner. The translation (assuming the Examiner's translation is even correct) states "11 is the AC power supply" which obviously DRIVES the vibration.

In '480, the invention works by examination of "the homogeneous response". By contrast, in Masaaki (06-018683), the driven response yields no information

about the electrode, but only gives information about the drive system. The Examiner is again referred to any elementary calculus book so that he may understand what is well known to any qualified engineer, and any well-trained American scientist.

28. The Examiner states,

"Applicant's claim language reads on the figures in JP-06-018683 as follows:... c) 'second mass,' reads on structure that is coupled to the vibrating cathode at its exterior."

THE TRUTH - JP-06-018683 involves Different Technology

The Examiner is disingenuous. Applicant's claim language does NOT read on the figures, or the text, or the claims, or the description, of JP-06-018683..

Does "second mass" really read on "structure that is coupled to the vibrating cathode at its exterior"? No. In the case of the '480, the natural frequency of the electrode is used to determine, via the impulse response, the loading of said electrode. This homogeneous response, of the present invention (vide supra), is far from the driven system used in Masaaki (06-018683), yet again inaccurately cited by the Examiner.

As the original specification of '480 states (page 16),

"Yet another monitoring configuration involves the use of a second external mass coupled to the above cited large external mass. Forced mechanical vibration of said second external mass will eventually couple phonons to the cathode and thereby cause it to vibrate at its own natural frequency."

By contrast, the Masaaki structure that is coupled to the vibrating cathode at its exterior is used to hold the electrode and not drive it. Once again the Examiner confuses natural frequency and homogeneous response with clamp used to hold Masaaki's driven system.

THE TRUTH - JP-06-018683 Has Different Features

29. The Examiner is wrong for several reasons. First, the invention at issue in this case, '480, is claimed by Claims 1-20, and is generally speaking a vibrating electrode, composed of a metal such as palladium which has internal filling ("loading") with hydrogen, which is monitored for its natural frequency to reveal information about the loading, *in situ*, and non-invasively.

Second, '480 has elements which are nowhere in JP-06-018683, or in any combination of the Examiner's cited art. Second, the Examiner has ignored that in

the present invention, additional techniques are used and features exist, unlike JP-06-018683. Third, JP-06-018683 includes none of the features of the present invention.

Where in JP-06-018683 is the vibrational cathode of the present invention used to measure loading? It is shown in Figures 1,2,3, and 4 of the original specification of the above-entitled invention. It is not in JP-06-018683.

Where in JP-06-018683 is the optical interrogating beam or other method to investigate the frequency of the vibrational cathode? It is shown in Figures 1, 2 and 3 of the original specification of the above-entitled invention. They are not in JP-06-018683.

Where in JP-06-018683 is the optical beam (labeled as number 12 in Figure 1), or the optical irradiator subsystem (labeled as number 30), or the optical detection subsystem (labeled as number 31)? They are shown in Figures 1,2 and 3 of the original specification of the above-entitled invention. They are not in JP-06-018683.

Where in JP-06-018683 is the laser (labeled as number 18), the transparent windows (labeled as number 17), or the optical irradiator subsystem and optical detection subsystem (labeled as numbers 30 and 31)? They are shown in Figures 1, 2 and 3 of the original specification of the above-entitled invention. They are not in JP-06-018683.

Where in JP-06-018683 is the optical lenses and/or beam splitters (labeled as number 19), or the detector subsystem, containing the optical detectors (e.g. a phototransistor (labeled as number 20), or the event detector (e.g. Schmidt trigger) to detect transitions (labeled as number 21), or the frequency counter (labeled as number 22)? They are shown in Figures 1,2 and 3 of the original specification of the above-entitled invention. They are not in JP-06-018683.

Where in JP-06-018683 is the lower large mass (labeled as number 11), or the "springy" material to alter the resonant frequency of the vibrating cathode (number 13), or the large mass (labeled as number 14) located outside of the reaction cell? They are not in JP-06-018683.

Where in JP-06-018683 is the modified cathode (labeled as number 1) with two sites on said cathode where platinum wires are attached (labeled as number 71 and 72 in Figure 5) which are used to create said intraelectrode additional electric field?

Where in JP-06-018683 is the additional electric field internal to the loaded

cathode, which in the present application is clearly shown in figure 5? They are not in JP-06-018683.

Where in JP-06-018683 is the teaching of controlling a volume within the loaded cathode using an additional electric field and an orthogonal applied magnetic field intensity as taught in the present invention? Where in JP-06-018683 is the applied magnetic field intensity orthogonal to the additional applied electric field? They are not in JP-06-018683.

Where are these features in JP-06-018683 like the Examiner falsely purports?
None of these are present in JP-06-018683.

THE TRUTH - JP-06-018683 involves Different Purposes

30. The Examiner has ignored the purposes and results, which are different. Masaaki (06-018683) is an oscillating electrode to have "expanded the reaction area". Masaaki resonates the electrode to increase the surface area. In Masaaki, there is no discussion of loading, and no measurement of loading. Furthermore, in Masaaki, there is no measurement of frequency change of the vibrating electrode from loading, and no change in the frequency of the vibration.

In summary, the material of Applicant's invention, '480, does not read on JP-06-018683, as the Examiner suggests. This present invention is novel and not anticipated by the cited art, JP-06-018683.

Takumoto, US 4,201,63

31. Regarding Takumoto, the Office states,

"7. Claims 8-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takumoto et al. in view of either one of Rudd (4,554,836) or Sugimoto (U.S. 4,768,381)."

Takumoto et al. disclose the applicant's claims except for the laser measurement of the vibration frequency of the cathode.

... As discussed in section 7, applicant's claimed method of cold fusion reaction is practiced on an apparatus of non-cold fusion art that is identical to Takumoto et al. (U.S. 4,016,052)."

THE TRUTH - The Examiner is inaccurate

The Examiner has ignored that in the present invention, additional techniques are used and features exist, quite unlike Tokumoto (4,016,052). Simply put, Tokumoto (4,016,052) includes none of the features of the present invention.

Tokumoto (4,016,052) is an electrode deposition process. Tokumoto uses a fused salt electrolyte. Even the Examiner admits this,

".... the identical systems and methods of operation in Takumoto et al. presumably did not produce said low temperature nuclear reactions."

In fact, there are even more differences. There is no loading in Tokumoto. Furthermore, Tokumoto does not measure loading.

THE TRUTH - Tokumoto (4,016,052) has different Features

32. Where in Tokumoto (4,016,052) is the vibrational cathode of the present invention used to measure loading? It is shown in Figures 1,2,3, and 4 of the original specification of the above-entitled invention. It is not in Tokumoto (4,016,052). In fact, there is no loading described in Tokumoto, and nothing in Tokumoto does measure loading.

Where in Tokumoto (4,016,052) is the optical interrogating beam or other method to investigate the frequency of the vibrational cathode? It is shown in Figures 1, 2 and 3 of the original specification of the above-entitled invention. They are not in Tokumoto (4,016,052).

Where in Tokumoto (4,016,052) is the optical beam (labeled as number 12 in Figure 1), or the optical irradiator subsystem (labeled as number 30), or the optical detection subsystem (labeled as number 31)? They are shown in Figures 1,2 and 3 of the original specification of the above-entitled invention. They are not in Tokumoto (4,016,052).

Where in Tokumoto (4,016,052) is the laser (labeled as number 18), the transparent windows (labeled as number 17), or the optical irradiator subsystem and optical detection subsystem (labeled as numbers 30 and 31)? They are shown in Figures 1, 2 and 3 of the original specification of the above-entitled invention. They are not in Tokumoto (4,016,052).

Where in Tokumoto (4,016,052) is the optical lenses and/or beam splitters (labeled as number 19), or the detector subsystem, containing the optical detectors (e.g. a phototransistor (labeled as number 20), or the event detector (e.g. Schmidt trigger) to detect transitions (labeled as number 21), or the frequency counter (labeled as number 22)? They are shown in Figures 1,2 and 3 of the original specification of the above-entitled invention. They are not in Tokumoto (4,016,052).

Where in Tokumoto (4,016,052) is the lower large mass (labeled as number 11), or the "springy" material to alter the resonant frequency of the vibrating

cathode (number 13), or the large mass (labeled as number 14) located outside of the reaction cell? They are not in Tokumoto (4,016,052).

Where in Tokumoto (4,016,052) is the reaction chamber (labeled as number 16)? It is not in Tokumoto (4,016,052).

Where in Tokumoto (4,016,052) is the platinum anode (labeled a number 60) or palladium cathode (labeled as number 1)? They are not in Tokumoto (4,016,052).

Where in Tokumoto (4,016,052) is the heavy water as the source of deuterons to be loaded? It is not in Tokumoto (4,016,052).

Where in Tokumoto (4,016,052) is the modified cathode (labeled as number 1) with two sites on said cathode where platinum wires are attached (labeled as number 71 and 72 in Figure 5) which are used to create said intraelectrode additional electric field? Where in Tokumoto (4,016,052) is the additional electric field internal to the loaded cathode, which in the present application is clearly shown in figure 5? They are not in Tokumoto (4,016,052).

Where in Tokumoto (4,016,052) is the teaching of controlling a volume within the loaded cathode using an additional electric field and an orthogonal applied magnetic field intensity as taught in the present invention? Where in Tokumoto (4,016,052) is the applied magnetic field intensity orthogonal to the additional applied electric field? They are not in Tokumoto (4,016,052).

Where are these features in Tokumoto (4,016,052) like the Examiner falsely purports? The simple fact is: None of these are present in Tokumoto (4,016,052).

THE TRUTH - Tokumoto (4,016,052) involves Different Purposes and is a Different Invention

33. The Examiner has ignored the purposes and result are different. Tokumoto (4,016,052) is an electrode deposition process, as Tokumoto says. Tokumoto uses a fused salt electrolyte, as Tokumoto says.

In Tokumoto, there is no discussion of loading, and no measurement of loading. Furthermore, in Tokumoto, there is no measurement of frequency change of the vibrating electrode from loading, and no change in the frequency of the vibration.

In summary, the material of Applicant's invention, '480, does not read on Tokumoto (4,016,052), as the Examiner suggests. This present invention is novel and not anticipated by the irrelevant and immaterial cited art, Tokumoto (4,016,052).

34. Regarding Takumoto, the Office states,
"Note that it is Well-settled case law that identical apparatuses operated in the same manner, must produce identical results."

THE TRUTH - The Examiner is accurate, but these are not identical "apparatuses"

Although "identical apparatuses operated in the same manner, must produce identical results", that is NOT the case here. The Examiner has ignored the fact that the inventions are different, the purposes and results are different. Tokumoto (4,016,052) is an electrode deposition process, as Tokumoto says. Tokumoto uses a fused salt electrolyte, as Tokumoto says. In Tokumoto, there is no discussion of loading, and no measurement of loading. Furthermore, in Tokumoto, there is no measurement of frequency change of the vibrating electrode from loading, and no change in the frequency of the vibration. In summary, the material of Applicant's invention, '480, does not read on Tokumoto (4,016,052), as the Examiner suggests. This present invention is novel and not anticipated by the irrelevant and immaterial cited art, Tokumoto (4,016,052).

In summary, the Examiner has ignored the following. Where in the cited art the features of '480 like the Examiner purports? Where in the cited art are the features clearly shown in Figures 1 though 5, and discussed in the original specification of the above-entitled application like the Examiner purports? Therefore, the material of Applicant's invention, '480, does not read on the cited art, as the Examiner suggests.

LAW

35. In particular, as to Section 102 rejections, it is stated in M.P.E.P. 706.2 that:

"The distinction between rejections based on 35 USC 102 and those based on 35 USC 103 should be kept in mind. Under the former, the claim is anticipated (emphasis added) by the reference."

Where in the cited references is the vibrational cathode to measure loading of the electrode, as featured in the present invention? It is shown in Figures 1,2,3, and 4 of the original specification of the above-entitled invention. It is not in the cited references.

Where in the cited references is the additional electric field internal to the loaded cathode, clearly shown in figure 5? It is not in the cited references.

Where in the cited references are the two additional electrodes on the sides of the loaded cathode (71 and 72, in figure 4) which are used to create said intraelectrode additional electric field? They are not in the cited references.

Where in the cited references is the optical beam or other method to investigate said vibrational cathode to measure loading of the electrode, as is done in the present invention? It is shown in Figures 1, 2 and 3 of the original specification of the above-entitled invention. It is not in the cited references.

Where in the cited references is the teaching of controlling a volume within the loaded cathode using an additional electric field and an orthogonal applied magnetic field intensity as taught in the present invention? It is shown in Figure 5 and taught in the original specification of the above-entitled invention. It is not in the cited references.

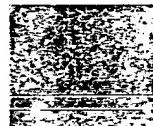
Where are these features, methods, and purpose, in the cited references like the Examiner disingenuously purports?

The only reasonable conclusion is that the present invention is novel, not obvious, and is distinguished from all previous, and cited, art.

.6. In this same connection, The Court of Customs and Patent Appeals said in *In re Arkely, Eardley and Long*, 172 U.S.P.Q. 524, 526 (CCPA, 1972):

'It is to be noted that rejections under 35 USC 103 are proper where the subject matter claimed 'is not identically disclosed or described'(emphasis by the Court) 'in the prior art,' indicating that rejections under 35 USC 102 are proper only when the claimed subject matter is identically disclosed or described in 'the prior art'.

The Applicant has explained in detail (supra) how JP-06-018683 and Takumoto and the other cited art are different and therefore produce a different result from the present invention. Applicant has given lists of additional critical features and components which distinguish Applicant's invention to operatively function in a different manner to the cited art.



Therefore, given the above, the independent claims, and hence all Claims distinguish over the reference cited under Sec. 102. The present invention is novel and not anticipated by the cited art. Given the above, reconsideration with respect to novelty (Sec. 102) of Claims 1-20 is respectfully and reasonably requested by the Applicant.

ARGUMENT - Claim Rejections under 35 USC § 103

37. The Applicant notes, and disputes, that Claims 8-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takumoto et al. in view of either one of Rudd (4,554,836) or Sugimoto (U.S. 4,768,381), Claims 1, 3-7 are rejected under 35 U.S.C. 103(a) as being "obvious over Takumoto et al. (U.S. 4,016,052)" with no second art being mentioned, and Claims 8-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 06-018683 in view of any one of Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439). For each rejection under 35 U.S.C. 103, the Applicant hereby does fully and completely specify the errors in the Office's rejections and the specific limitations in the rejected claims which are not described in the prior art relied on in the rejection. Applicant also explains how such limitations render the claimed subject matter unobvious over the prior art.

38. The Office states,

"7. Claims 8-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takumoto et al. in view of either one of Rudd (4,554,836) or Sugimoto (U.S. 4,768,381).

Takumoto et al. disclose the applicant's claims except for the laser measurement of the vibration frequency of the cathode. Either one of Rudd or Sugimoto a laser vibrometer for remotely measuring the vibration frequency of an object. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by Takumoto et al., by the teaching of any one of Either one of Rudd or Sugimoto to include a laser vibrometer to gain the advantages thereof (i.e., more precise vibration information), because such modification is no more than the use of well known expedient for measuring vibrations in the art."

THE TRUTH - The Examiner is not accurate

The Examiner is not accurate for several reasons which will now be discussed in detail.

BACKGROUND: Tokumoto (4,016,052)

Tokumoto (4,016,052) is an electrode deposition process. Tokumoto uses a fused salt electrolyte. There is no loading in Tokumoto. Furthermore, Tokumoto does not measure loading.

BACKGROUND: Rudd (4,554,836)

Rudd (4,554,836) is a laser vibrometer which works by optical interference to detect and measure discontinuities in structural materials from ultrasonic stress waves present at the surfaces. Rudd uses a laser vibrometer (10), an end mirror (14), a Bragg cell (16), a signal generator (22), a acoustic absorber (24), a phase demodulator (42) and a phase/frequency demodulator (44). The displaced measurement is a function of phase shift. In Rudd, the modulated light beam passes through a lens and then laser light is scattered and heterodyned with an unshifted portion of the laser beam. In Rudd, there is no loading. Furthermore, Rudd does not measure loading. By contrast, the purpose of Rudd is to measure discontinuities.

BACKGROUND: Sugimoto (4,768,381)

Sugimoto (4,768,381) is an optical vibrometer which is used to measure the three-dimensional vibration of an object by light reflection from a conical surface. In Sugimoto, the light is scattered by the surface, and in Sugimoto, measurement is made by frequency deviation and position. Sugimoto uses a conical concave reflective surface (12) having an apex angle of 90 degrees. In Sugimoto, a beam splitter (101) is used along with a reflective mirror (102a), as well as a second, and third, beam splitter (103). Sugimoto uses a plug cell (106) and captures a beat signal (108). Translucent photo diodes (203) are used to detect position as an electrical matrix through wire leads (204). In Sugimoto there is no loading. Furthermore, Sugimoto does not measure loading.

THE TRUTH - The Examiner Ignores the Present Invention

39. The Examiner has ignored that in the present invention, additional techniques are used and features exist, quite unlike Tokumoto (4,016,052), Rudd (4,554,836) or Sugimoto (4,768,381). Simply put, Tokumoto (4,016,052), Rudd (4,554,836) or Sugimoto (4,768,381) include none of the features of the present invention.

Where in Tokumoto (4,016,052), Rudd (4,554,836) or Sugimoto (4,768,381) is the vibrational cathode of the present invention used to measure loading? It is shown in Figures 1,2,3, and 4 of the original specification of the above-entitled invention. It is not in Tokumoto (4,016,052), Rudd (4,554,836) or Sugimoto (4,768,381). There is no loading in Tokumoto, Rudd (4,554,836) or Sugimoto (4,768,381). Furthermore, Tokumoto, Rudd (4,554,836) or Sugimoto (4,768,381) does not measure loading.

Where in Tokumoto (4,016,052), Rudd (4,554,836) or Sugimoto (4,768,381) is the lower large mass (labeled as number 11); or the "springy" material to alter the resonant frequency of the vibrating cathode (number 13), or the large mass (labeled as number 14) located outside of the reaction cell? They are not in Tokumoto (4,016,052), Rudd (4,554,836) or Sugimoto (4,768,381).

Where in Tokumoto (4,016,052) is the platinum anode (labeled a number 60) or palladium cathode (labeled as number 1)? They are not in Tokumoto (4,016,052), Rudd (4,554,836) or Sugimoto (4,768,381).

Where in Tokumoto (4,016,052), Rudd (4,554,836) or Sugimoto (4,768,381) is the heavy water as the source of deuterons to be loaded? It is not in Tokumoto (4,016,052), Rudd (4,554,836) or Sugimoto (4,768,381).

Where in Tokumoto (4,016,052), Rudd (4,554,836) or Sugimoto (4,768,381) is the modified cathode (labeled as number 1) with two sites on said cathode where platinum wires are attached (labeled as number 71 and 72 in Figure 5) which are used to create said intraelectrode additional electric field? And where in Tokumoto (4,016,052), Rudd (4,554,836) or Sugimoto (4,768,381) is the additional electric field internal to the loaded cathode, which in the present application is clearly shown in figure 5? They are not in Tokumoto (4,016,052), Rudd (4,554,836) or Sugimoto (4,768,381).

Where in Tokumoto (4,016,052), Rudd (4,554,836) or Sugimoto (4,768,381) is the teaching of controlling a volume within the loaded cathode using an additional electric field and an orthogonal applied magnetic field intensity as taught in the present invention? Where in Tokumoto (4,016,052), Rudd (4,554,836) or Sugimoto (4,768,381) is the applied magnetic field intensity orthogonal to the additional applied electric field? They are not in Tokumoto (4,016,052), Rudd (4,554,836) or Sugimoto (4,768,381).

Where are these features in Tokumoto (4,016,052), Rudd (4,554,836) or Sugimoto (4,768,381) like the Examiner falsely purports? The simple fact is: None of these are present in Tokumoto (4,016,052), Rudd (4,554,836) or Sugimoto (4,768,381) or in any other combination of the cited art.

40. Claims 8-30 are rejected improperly under 35 U.S.C. 103(a) as being unpatentable over Takumoto et al. in view of either one of Rudd (4,554,836) or Sugimoto (U.S. 4,768,381).

Takumoto et al. DOES NOT disclose the applicant's claims and neither does any combination of the other cited art.

41. The Office states,

"6. Claims 1, 3-7 are rejected under 35 U.S.C. 103(a) as being obvious over Takumoto et al. (U.S. 4,016,052). "

THE TRUTH - The Examiner is inaccurate

The Examiner is inaccurate because a 35 U.S.C. 103(a) rejection cannot be made over a single patent such as Takumoto et al. (U.S. 4,016,052). Furthermore, Takumoto was discussed in detail above.

42. The Office states,

"They disclose a continuous electrodeposition process using a vibrating cathode in an electrolyte."

THE TRUTH - The Examiner is inaccurate

The Examiner is inaccurate. Where in Tokumoto (4,016,052) is the vibrational cathode of the present invention used to measure loading? It is shown in Figures 1,2,3, and 4 of the original specification of the above-entitled invention. [The invention at issue in this case, '480, is claimed by Claims 1-20, and is generally speaking a vibrating electrode, composed of a metal such as palladium which has internal filling ("loading") with hydrogen, which is monitored for its natural frequency to reveal information about the loading, *in situ*, and non-invasively.]

It is not in Tokumoto (4,016,052). There is no loading in Tokumoto. Furthermore, Tokumoto does not measure loading. Where is this feature in Tokumoto (4,016,052) like the Examiner falsely purports? The simple fact is: It is not present in Tokumoto (4,016,052).

43. The Office states,

"They disclose an embodiment of a cathode of stainless steel and an electrolyte comprising magnesium chloride, calcium chloride and sodium chloride. Stainless steel is a material that can include nickel and nickel is a well-known material to absorb (i.e., "load") hydrogen isotopes."

THE TRUTH - The Examiner is inaccurate

Tokumoto (4,016,052) is an electrode deposition process and Tokumoto uses a fused salt electrolyte at circa 560 degrees C. There is no loading in Tokumoto. Furthermore, Tokumoto does not measure loading. Furthermore, stainless steel

does not perform as the Examiner speculates. In fact, if the materials of Tokumoto (4,016,052) were used as the Examiner purports, the present invention would not even work. The Examiner should know this. Scientists know this.

44. The Office states,

"Either one of magnesium chloride, calcium chloride or sodium chloride has hydroscopic properties, i.e., any one of them can absorb water from the surrounding atmosphere of the Takumoto et al. apparatus. Water is also well known to contain a small percentage of deuterium."

THE TRUTH - The Examiner is inaccurate

Tokumoto (4,016,052) is an electrode deposition process and Tokumoto uses a fused salt electrolyte at circa 560 degrees C. It is untrue that they will "absorb water from the surrounding atmosphere" at that temperature. The Examiner is disingenuous. No significant amount of water will be absorbed, but instead it will be lost at those temperatures which are more than sufficient to break the hydrogen bonds and allow the water to escape. The Examiner whoule know this. Scientists know this. Probably, even high school students know this.

45. The Office states,

"They disclose that it is preferable to rotate or vibrate the cathode, either at a constant rate or by periodically varying the rate of rotation or vibration of the cathode. For example, they disclose a rotation of the cathode electrode at 2000 rpm (see column 13, last two lines). They also disclose the cathode electrode being vibrated with a period of 400 cycles per min (see column 18, lines 30+). Note that rotation of the cathode inherently also results in its vibration"

THE TRUTH - The Examiner is inaccurate

First, rotation and forced oscillation is NOT vibration at the natural frequency (as is taught in '480). The Examiner is making up new material.

Second, where in Tokumoto (4,016,052) is the vibrational cathode of the present invention used to measure loading? It is shown in Figures 1,2,3, and 4 of the original specification of the above-entitled invention? It is not in Tokumoto (4,016,052). There is no loading in Tokumoto. Furthermore, Tokumoto does not measure loading. Where is this feature in Tokumoto (4,016,052) like the Examiner purports? The simple fact is: It is not present in Tokumoto (4,016,052).

46. The Office states,

"12. Claims 8-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 06-018683 in view of any one of Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439). JP-06-018683 discloses the applicant's claims except for the laser measurement of the vibration frequency of the cathode."

THE TRUTH - The Examiner is inaccurate

Wang, Steinlecher, Zang, or JP-06-018683 DOES NOT disclose the applicant's claims except for the laser measurement of the vibration frequency of the cathode. The Examiner has ignored that in the present invention, additional techniques are used and features exist, and unlike Wang, Steinlecher, Zang, or JP-06-018683. The invention at issue in this case, '480, is claimed by Claims 1-20, and is generally speaking a vibrating electrode, composed of a metal such as palladium which has internal filling ("loading") with hydrogen, which is monitored for its natural frequency to reveal information about the loading, *in situ*, and non-invasively. Wang, Steinlecher, Zang, or JP-06-018683 includes none of the features of the present invention.

BACKGROUND: Zang (5,836,439)

Zang (5,836,439) is a heterodyned self mixing laser diode vibrometer. Zang measures remote vibration by Doppler measurement. Zang uses a frequency shifting element (6), a lens (8), a frequency modulated demodulator (31) and an impedance amplifier (5). Zang also requires an acoustic-optic demodulator (25) and a beam dump (56). Zang combines an external two path frequency shifting technique with a heterodyned detection.

The date of Zang is Nov. 17, 1998. The applicant notes that the application Serial no. 07/ 371,937 --of which the present invention '480 is a continuation -- was filed 06/27/89 which is prior to Zang.

In Zang there is no loading. Furthermore, Zang does not measure loading.

BACKGROUND: Steinlechner (5,883,715)

Steinlechner (5,883,715) is a laser vibrometer for vibration measurements. Steinlechner uses a polarization beam splitter (3), lens (2), two quarter wave plates (6 and 7), and an optical detour (13) or an arm of an interferometer (13). In Steinlechner, the optical beam is reflected by the object, superimposed as an interference signal, and the two reflected beams sent to electronic equipment (10). A current modulator (11) is used.

The date of Steinlechner is March 16,1999. The applicant notes that the application Serial no. 07/ 371,937 --of which the present invention '480 is a continuation -- was filed 06/27/89 which is prior to Steinlechner.

In Steinlechner there is no loading. Furthermore, Steinlechner does not measure loading.

BACKGROUND: Wang (5,495,767)

Wang (5,495,767) is a laser vibrometer. Wang uses a digitizer, two optical sensors, a digital signal, and a flip-flop circuit. Wang uses a series of splitters, polarizers, and other elements to measure rate at which a target vibrates.

The date of Wang is March 5th, 1996. The applicant notes that the application Serial no. 07/ 371,937 --of which the present invention '480 is a continuation -- was filed 06/27/89 which is prior to Wang.

In Wang there is no loading. Furthermore, Wang does not measure loading.

Where in Wang, Steiniecher, Zang, or JP-06-018683 is the vibrational cathode of the present invention used to measure loading? It is shown in Figures 1,2,3, and 4 of the original specification of the above-entitled invention. It is not in Wang, Steiniecher, Zang, or JP-06-018683.

Where in Wang, Steiniecher, Zang, or JP-06-018683 is the optical interrogating beam or other method to investigate the frequency of the vibrational cathode to determine loading? It is shown in Figures 1, 2 and 3 of the original specification of the above-entitled invention. They are not in Wang, Steiniecher, Zang, or JP-06-018683.

Where in Wang, Steiniecher, Zang, or JP-06-018683 is the optical beam (labeled as number 12 in Figure 1), or the optical irradiator subsystem (labeled as number 30), or the optical detection subsystem (labeled as number 31) to investigate the frequency of the vibrational cathode to determine loading? They are shown in Figures 1,2 and 3 of the original specification of the above-entitled invention. They are not in Wang, Steiniecher, Zang, or JP-06-018683.

Where in Wang, Steiniecher, Zang, or JP-06-018683 is the optical lenses and/or beam splitters (labeled as number 19), or the detector subsystem, containing the optical detectors (e.g. a phototransistor (labeled as number 20), or the event detector (e.g. Schmidt trigger) to detect transitions (labeled as number 21), or the frequency counter (labeled as number 22) to investigate the frequency of the vibrational cathode to determine loading? They are shown in Figures 1,2 and 3 of the original

specification of the above-entitled invention. They are not in Wang, Steiniecher, Zang, or JP-06-018683.

Where in Wang, Steiniecher, Zang, or JP-06-018683 is the lower large mass (labeled as number 11), or the "springy" material to alter the resonant frequency of the vibrating cathode (number 13), or the large mass (labeled as number 14) located outside of the reaction cell? They are not in Wang, Steiniecher, Zang, or JP-06-018683.

Where in Wang, Steiniecher, Zang, or JP-06-018683 is the modified cathode (labeled as number 1) with two sites on said cathode where platinum wires are attached (labeled as number 71 and 72 in Figure 5) which are used to create said intraelectrode additional electric field? Where in Wang, Steiniecher, Zang, or JP-06-018683 is the additional electric field internal to the loaded cathode, which in the present application is clearly shown in figure 5? They are not in Wang, Steiniecher, Zang, or JP-06-018683.

Where in Wang, Steiniecher, Zang, or JP-06-018683 is the teaching of controlling a volume within the loaded cathode using an additional electric field and an orthogonal applied magnetic field intensity as taught in the present invention? Where in JP-06-018683 is the applied magnetic field intensity orthogonal to the additional applied electric field? They are not in Wang, Steiniecher, Zang, or JP-06-018683.

Where are these features in Wang, Steiniecher, Zang, or JP-06-018683 like the Examiner falsely purports? None of these are present in Wang, Steiniecher, Zang, or JP-06-018683.

47. The Office states,

"Anyone of Wang et al., Steiniecher et al., or Zang et al. disclose a laser vibrometer for remotely measuring the vibration frequency of an object. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by JP-06018683, by the teaching of any one of Wang et al., Steinlecher et al., or Zang et al. to include a laser vibrometer to gain the advantages thereof (i.e., more precise vibration information), because such modification is no more than the use of well known expedient for measuring vibration within the art."

THE TRUTH - The Examiner is inaccurate

First, the applicant notes that the application Serial no. 07/ 371,937 --of which the present invention '480 is a continuation -- was filed 06/27/89 which is prior to cited art. Nonetheless in arguendo, the applicant will now discuss the cited art in full detail to demonstrate that even if it was timely, which it is not, it is not relevant to the present novel invention.

Second, the Examiner has ignored that in the present invention, additional techniques are used and features exist, and unlike Wang, Steiniecher, Zang, or JP-06-018683.

Third, Wang, Steiniecher, Zang, and JP-06-018683 do not include the important features of the present invention.

Where in Wang, Steiniecher, Zang, or JP-06-018683 is the vibrational cathode of the present invention used to measure loading? It is shown in Figures 1,2,3, and 4 of the original specification of the above-entitled invention. It is not in Wang, Steiniecher, Zang, or JP-06-018683.

Where in Wang, Steiniecher, Zang, or JP-06-018683 is the optical interrogating beam or other method to investigate the frequency of the vibrational cathode which measures loading? It is shown in Figures 1, 2 and 3 of the original specification of the above-entitled invention. They are not in Wang, Steiniecher, Zang, or JP-06-018683.

Where in JP-06-018683 is the transparent windows (labeled as number 17)? It is shown in Figures 1, 2 and 3 of the original specification of the above-entitled invention. They are not in Wang, Steiniecher, Zang, or JP-06-018683.

Where in Wang, Steiniecher, Zang, or JP-06-018683 are the event detector (e.g. Schmidt trigger) to detect transitions (labeled as number 21), or the frequency counter (labeled as number 22)? They are in the original specification of the above-entitled invention. They are not in Wang, Steiniecher, Zang, or JP-06-018683.

Where in Wang, Steiniecher, Zang, or JP-06-018683 is the lower large mass (labeled as number 11), or the "springy" material to alter the resonant frequency of the vibrating cathode (number 13), or the large mass (labeled as number 14) located outside of the reaction cell? They are not in Wang, Steiniecher, Zang, or JP-06-018683.

Where in Wang, Steiniecher, Zang, or JP-06-018683 is the modified cathode (labeled as number 1) with two sites on said cathode where platinum wires are attached (labeled as number 71 and 72 in Figure 5) which are used to create said intraelectrode additional electric field? Where in Wang, Steiniecher, Zang, or JP-06-018683 is the additional electric field internal to the loaded cathode, which in the present application is clearly shown in figure 5? They are not in Wang, Steiniecher, Zang, or JP-06-018683.

Where in Wang, Steinlechner, Zang, or JP-06-018683 is the teaching of controlling a volume within the loaded cathode using an additional electric field and an orthogonal applied magnetic field intensity as taught in the present invention? Where in Wang, Steinlechner, Zang, or JP-06-018683 is the applied magnetic field intensity orthogonal to the additional applied electric field? They are not in Wang, Steinlechner, Zang, or JP-06-018683.

Where are these features in Wang, Steinlechner, Zang, or JP-06-018683 like the Examiner falsely purports? None of these are present in Wang, Steinlechner, Zang, or JP-06-018683.

THE TRUTH - Wang, Steinlechner, Zang, and JP-06-018683 involve Different Purposes

48. The Examiner has ignored the fact that the purposes and result are different. Masaak i (06-018683) is a vibrating electrode to have "expanded the reaction area". Masaaki resonates the electrode to increase the surface area. In Masaaki, there is no discussion of loading, and no measurement of loading. Furthermore, in Masaaki, there is no measurement of frequency change of the vibrating electrode from loading, and no change in the frequency of the vibration.

Zang (5,836,439) is a heterodyned self mixing laser diode vibrometer. Zang measures remote vibration by Doppler measurement. Zang uses a frequency shifting element (6), a lens (8), a frequency modulated demodulator (31) and an impedance amplifier (5). Zang also requires an acoustic-optic demodulator (25) and a beam dump (56). Zang combines an external two path frequency shifting technique with a heterodyned detection. In Zang there is no loading. Furthermore, Zang does not measure loading.

Steinlechner (5,883,715) is a laser vibrometer for vibration measurements. Steinlechner uses a polarization beam splitter (3), lens (2), two quarter wave plates (6 and 7), and an optical detour (13) or an arm of an interferometer (13). In Steinlechner, the optical beam is reflected by the object, superimposed as an interference signal, and the two reflected beams sent to electronic equipment (10). A current modulator (11) is used. In Steinlechner there is no loading. Furthermore, Steinlechner does not measure loading.

Wang (5,495,767) is a laser vibrometer. Wang uses a digitizer, two optical sensors, a digital signal, and a flip-flop circuit. Wang uses a series of splitters, polarizers, and other elements to measure rate at which a target vibrates. In Wang there is no loading. Furthermore, Wang does not measure loading.

In summary, it is clear that the material of Applicant's invention, '480, does not read on Takumoto, Rudd (4,554,836), Sugimoto (U.S. 4,768,381), Wang, Steinlecher, Zang, JP-06-01868, or the other cited art, or any combination thereof, as the Examiner suggests. This present invention is novel and not obvious, and certainly not anticipated by the cited art, Takumoto, Rudd (4,554,836), Sugimoto (U.S. 4,768,381), Wang, Steinlecher, Zang, JP-06-01868, or the other cited art, as discussed in detail above.

LAW

49. The material of Applicant's invention, '480, does not read on Takumoto, Rudd (4,554,836), Sugimoto (U.S. 4,768,381), Wang, Steinlecher, Zang, JP-06-01868, or the other cited art, as the Examiner suggests (*supra*). Furthermore, the Examiner's use of the combinations including Takumoto et al. in view of either one of Rudd (4,554,836) or Sugimoto (U.S. 4,768,381) or JP 06-018683 in view of any one of Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439) is improper because of any one of the following are sufficient reasons.

None of the cited references, Takumoto; Rudd (4,554,836), Sugimoto (U.S. 4,768,381), JP 06-018683, Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439) suggests, alludes to, or teaches the precise structure as defined by Claims 1-20. As said in *Ex parte Fleischmann*, 157 USPQ 155, 156 (Bd. of Appeals 1967):

'While as an abstract proposition it might be possible to select features from the secondary references, as the examiner has done, and mechanically combine them with the (other citation) to arrive at appellant's claimed combination, we find absolutely no basis for making such combination neither disclosed nor suggested in the patents relied on.'

On the matter of combining references under Section 103, no better expression of the law is found then that in *Higley v. Brenner*, Cmr. Pats., 155 USPQ 481, 484 (CADC 1967):

'The obviousness question here revolves around the Patent Office's combining prior references. Reliance may properly be placed on such a combination to negative patentability where the applicant's subject matter is suggested or 'taught' by the prior references. Application of Van

Deventer, 223 F.2d 274, 276 106 USPQ 121, 123 (CCPA 1955); Application of Demarche, 219 F.2d 952, 956, 105 USPQ 65, 69 (CCPA 1955).'

'The test of obviousness, however, must be applied as of the time of the invention and not retrospectively as of the time of the suit. Many things may seem obvious after they have been made and for this reason courts should guard against slipping into the use of hindsight'.

Where is the method of the claims taught in the cited references? How were all portions of the claims considered in determining obviousness? With respect to evaluation of claims under 35 U.S.C. 103,

'every portion of the ... claims must be considered in determining ... obviousness'

[emphasis added; In re Duva, 156 USPQ 90, 94 (CCPA 1967)].

The Court, in reversing the Office in In re Kuderna and Phillips, 165 USPQ 575, 578- (CCPA 1970), referred to the

'sum of the relevant teaching in the art,' pointing out that the Office is not allowed to 'view ... first one and then another of isolated teachings' when determining that 'the subject matter as a whole would have been obvious at the time the invention was made',

as required by 35 U.S.C. 103.

Does Takumoto, Rudd (4,554,836), Sugimoto (U.S. 4,768,381), JP 06-018683, Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439) describe a method to reveal information about the loading, *in situ*, and non-invasively using a vibrating electrode, composed of a metal such as palladium which has internal filling ("loading") with hydrogen, which is monitored for its natural frequency? No.

50. Particularly pertinent is In re Shuman and Meinhardt, 150 USPQ 54, 57 (CCPA 1966) wherein the court said:

'References are evaluated by ascertaining the facts fairly disclosed therein as a whole. It is impermissible to first ascertain It is factually what appellants did and then view the prior art in such a manner as to select from the random facts of that art only those which may be modified and

**the utilized to reconstruct appellant's invention from such prior art.
[Emphasis added.]**

Does Takumoto, Rudd (4,554,836), Sugimoto (U.S. 4,768,381), JP 06-018683, Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439)s function, and operate, as the Examiner purports? No.

It is basic that the claims define the invention. The courts have said that:

'All words in a claim must be considered in judging the patentability of that claim against the prior art ... ', In re Wilson, 165 USPQ 494 (CCPA 1970). The terms in the claims 'should be given the meaning they would have 'to one of ordinary skill in the pertinent art when read in the light of and consistently with the specification ... ', In re Benson and Tabbott, 169 USPQ 548, 552 (CCPA 1971).

The Court of Custom and Patent Appeals in In re Langer and Haynes, 175 USPQ 169, 171 (CCPA 1972) and as to a rejection based upon prior art teachings, said:

'This court has said that '(a)ll of the disclosures in a reference must be evaluated for what they fairly teach (emphasis added) one of the ordinary skill in the art.'

The figures and claims of Takumoto, Rudd (4,554,836), Sugimoto (U.S. 4,768,381), JP 06-018683, Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439), are intended to, and do, serve a different purpose than does the figures and claims in the present invention, and each adds nothing of substance to the other. **None of the references suggests, alludes to, or teaches a structure as defined by the claims of this invention or the Figures therein.**

Unsuggested Combination:

51. There is no suggestion in the references themselves that they be combined, or could be combined. Where was the suggestion of the desirability of the modification? Indeed, neither of the references suggests, alludes to, or teaches a structure as defined by the claims of this invention, and as should be apparent? The need for the prior art references themselves to suggest that they can be combined is well known. Therefore, of what relevance then is Takumoto, Rudd (4,554,836),

Sugimoto (U.S. 4,768,381), JP 06-018683, Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439)?

On the matter of applying references to claimed subject matter [eg. cf. In re Mercier, 185 U.S.P.Q. 774, (CCPA, 1975)]:

'These and other questions arise because the board's approach fails to recognize that all of the relevant teachings of the cited references must be considered in determining what they fairly teach to one having ordinary skill in the art. * * * 'The relevant portions of a reference include not only those teachings which would suggest particular aspects of an invention to one having ordinary skill in the art, but also those teachings which would lead such a person away from the cited invention.'

As was stated in In re Sernaker, 217 U.S.P.Q. 1,6 (CAPC 1983):

'(P)rior art references in combination do not make an invention obvious unless something in the prior art references would suggest that advantage to be derived from combining their teachings.'

The suggestion to combine the references should come from the prior art, rather than from applicant. As was forcefully stated in Orthopedic Equipment Co. Inc. v, United States, 217 U.S.P.W. 193, 199 (CAPC 1983):

'It is wrong to use the patent in suit [here the patent application] as a guide through the maze of prior art references, combining the right references in the right way to achieve the result of the claims in suit [here the claims at issue]. Monday morning quarterbacking is quite improper when responding the question of nonobviousness in a court of law [here the Office].'

Indeed, what the Office has done here is to

'pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art'

[In re Umbrechit, 160 USPQ 15, 19 (CCPA 1968)].

There is no teaching in the references that would support the combination the Office uses to reject the claims. The applicable law will now be noted in greater detail.

52. In this case, the Examiner uses Takumoto and JP 06-018683 and then misrepresents Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715), Zang et al. (U.S. 5,838,439), Rudd (4,554,836), and Sugimoto (U.S. 4,768,381) purporting them to be the present invention. But they are not.

Furthermore, in order to combine references there must be a 'suggestion of the desirability' of the combination, *In re Noznik, Tatter and Obenauf*, 178 USPQ 43, 45 (CCPA 1973). That holding is the reason why the origin of the combination must be given weight -- not only the possibility of such combination; see the reference to 'motivation or reason in Chicago Rawhide {**}' which focuses quite clearly on the rationale of recent decisions of the Court of Appeals for the Federal Circuit (CAFC) on the issue of obviousness, as discussed, for example, in *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984), wherein the court said at page 1127:

'The mere fact that the prior art could be so modified should not have made the modification obvious unless the prior art suggested the desirability of the modification. [Emphasis added]

[{**} *Ex parte Chicago Rawhide Manufacturing Co.*, 223 USPQ 351, 353 (Bd. of App. 1984)]

53. There would be no reason for one skilled in the art to combine Takumoto and either Rudd (4,554,836) or Sugimoto (U.S. 4,768,381), or JP 06-018683 and either Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439) and then twist, blend, and confabulate, their uses, function, operation, purposes, and control systems to purportedly obtain the present invention as the Examiner has done. Furthermore, there is no suggestion in the references themselves that they be combined, or could be combined that way. Thus the applicant submits that any combination of Takumoto, Rudd (4,554,836), Sugimoto (U.S. 4,768,381), JP 06-018683, Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439) is an improper one, absent any showing in the references themselves that they can or should be so combined in the twisted manner in which the Examiner suggests by removing words from their context in the cited nonrelevant art.

Where was the suggestion of the desirability and modification suggested by the Examiner? Indeed, what the Office has done here is to 'pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art', In re Umbrecht, 160 USPQ 15, 19 (CCPA 1968). There is no teaching in the references that would support the combination the Office uses to reject Claims 1-5, 7, 9-15, and 19-24. Indeed, neither of the references suggests, alludes to, or teaches a structure as defined by 1-5, 7, 9-15, and 19-24 or shown in Figure 4, and as should be apparent to the Office.

Thus the applicant submits that any combination of the cited references is an improper one, absent any showing in the references themselves that they can or should be so combined as the Examiner purports.

==== Additional Reasons Militate In Favor of Unobviousness ===

54. The Applicant respectfully notes to the examiner that there exist additional reasons which militate in favor of unobviousness.

Unexpected Results: Up to now, insofar as the Applicant is aware, the prior art cited by the examiner has virtually ignored the importance of determining the activity of a sample into which isotopic fuel is loaded. The device described within the above-entitled application is thus both superior and unsuggested. The means to improve loading is a *sine qua non* for the desired fusion reactions involving isotopic fuel in a material, and is therefore critical, and thus unobvious.

Assumed Insolubility. Up to now those skilled in the art have thought, or have found, that both obtaining fusion of this type, and the specific problem solved by this invention, were insoluble. The failures of much prior art, including but not limited to those cited by the examiner, indicates that a solution of these problems were, therefore, not obvious. This general lack of an obvious solution has occurred both generally in fusion, and specifically in the method to improve loading, as discussed in the above-entitled application.

Unrecognized Problem: Up to now, insofar as Applicant is aware, the art contained no indication of either how to succeed with "cold fusion" or the other uses of the present invention. The discovery of how to solve this problem, as well as the concomitant ability to improve loading, is submitted therefore to be an important one, and therefore worthy of patent protection.

Crowded Art: The present invention is in a crowded art. Attention is drawn, for example, to the plethora of references cited by the examiner in the brief period of time specified by the examiner. It is well recognized that in a crowded art, even a small step forward is worthy of patent protection. While the present invention is submitted to be far more than a small one, nevertheless this factor militates in Applicant's favor.

55. In summary, Applicant submits that the above-recited novel features in the independent claims, and hence in all claims, provide new and unexpected results. The subject matter sought to be patented by claims 1-20, a method to reveal information about the loading, *in situ*, and non-invasively using a vibrating electrode, composed of a metal such as palladium which has internal filling ("loading") with hydrogen, which is monitored for its natural frequency, was not obvious at the time the invention was made to a person having ordinary skill in the art for which the claimed subject matter pertains [35U.S.C. 103].

The Office has misread the claims of the present application under 35 U.S.C. §103.

The appealed claims do not stand or fall together. The Independant Claims are separately patentable with respect to 35 USC 103 and do not stand or fall together because they are materially distinct, are not unduly multiplied, and because all independent claims have separate limitations, as recited in the claims. Furthermore, They are separately patentable with respect to 35 USC 103 and do not stand or fall together because multiple claims are required because the invention described by the original specification of the above-entitled application is very complex. In addition, said Claims are separately patentable and do not stand or fall together because all of the claims are distinguished from the cited references and prior art with respect to 35 USC 103.

Therefore, it should be considered unobvious, making the claims patentable under Section 103. None of the prior art, nor any combination of such, provides this or these new and unexpected results. The present application is a novel and nonobvious. Given the above, reconsideration with respect to Sec. 103 of Claims 1-20 is respectfully and reasonably requested by the Applicant.

RE: U.S.C.112 REJECTION, First Paragraph

56. The Office says,

"However, as set forth above, the examiner has presented evidence showing that . . in such cold fusion systems, the claims of nuclear reaction products, are not reproducible or even obtainable. It consequently must follow that the claims of nuclear fusion reactions are not reproducible or even obtainable with applicant's invention. While applicant may have set forth theoretical concepts, it is well known in the cold fusion field that theory and reality have a habit of not coinciding. There is no evidence to indicate that the applicant has so succeeded where others have failed, in arriving at an operative cold fusion system"

THE TRUTH - The Examiner Is Inaccurate For Several Reasons

Claims 1-20 stand rejected under 35 U.S.C. 112 by the Examiner, incorrectly based reasons of rebuttal discussed in detail, below.

First, the Examiner is wrong about what is "obtainable". The Applicant has presented at ICCF-10 [Cambridge, MA; to which the Examiner and the Office's counsel were invited (through said counsel), but did not come].

"Dr. Mitchell Swartz's Fleischmann/Pons-type electrolytic palladium Phusor/low electrolyte conductance heavy water/platinum cell performed flawlessly in Prof. Hagelstein's lab at MIT during ICCF10. Its excess power ranged from 167% to 267% as Dr. Swartz altered the experimental conditions."

[Dr. Eugene Mallove, *Infinite Energy Magazine* 9/2003]

"Greetings. I am back from ICCF-10 ... Swartz, and Dash et al., live demonstrations at MIT. Marvelous work! Bravo to everyone! McKubre said he would never have the guts to try this, because so much can go wrong when you move an experiment."

[Jed Rothwell, Subject: Impressions of ICCF-10, 3 Sep 2003]

"Three excess heat experiments were shown in live demonstrations at ICCF10, including two on August 26, in a laboratory at MIT that was open to the public: A cell in a precision calorimeter was shown by Mitchell Swartz and Gayle Verner at MIT."

[<http://lenr-canr.org/iccf10/iccf10.htm>]

And yet as another example:

"La dixième conférence internationale sur la fusion froide ICCF10 s'est tenue à Boston aux Etats-Unis, du 24 au 29 août 2003. 120 personnes de 15 nationalités différentes y ont participé. Elle était organisée par le Professeur Peter Hagelstein, du MIT. ... "Deux démonstrations de fusion froide ont été présentées : l'une par le professeur John Dash de l'université de l'Oregon à Portland, et l'autre par le Dr Mitchell Swartz. Les deux expériences ont démontré la production d'excès de chaleur. ... M. Swartz a obtenu de forts excès de chaleur, jusqu'à 300% avec de l'eau lourde ultra pure de résistivité 220 k?, sans rajout d'électrolyte, avec cathode de palladium hélicoïdale."

[*Rapport sur L'International Conference on Cold Fusion ICCF10*]

Second, the Examiner is wrong because all of his arguments stem from his flawed reference to other art ("FP" or "F+P"), that he purports did not exist or was flawed thereby purportedly invalidating the applicant's independent work of the above-entitled action and of other work extending over more than fifteen years and which has produced more than forty-five papers in peer-reviewed scientific journals. The Examiner's citations are irrelevant, and cited incorrectly as well.

Third, the Examiner is wrong and inconsistent with Swartz, M., "Possible Deuterium Production from Light Water Excess Enthalpy Experiments Using Nickel Cathodes", *Journal New Energy*, 1, 3, 68-80 (1996) which absolutely proves Applicant was correct on the filing date of the application [In re Hogan, 559 F.2d 595, 60S, 194 USPQ 527, 537 (CCPA 1977)]. This invention involves loading.

Fourth, the Examiner is wrong and is inconsistent with the case law, the file wrapper, and the science (as will be discussed in great detail below).

57. The Examiner purports that Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph because the claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art ... to make and/or use the Invention.

THE TRUTH - These Claims claim the subject Matter of the Original Specification

The Examiner is incorrect. The claims are directly from the original specification, and claim exactly that which Examiner Wasil explicitly stated was the invention. The original specification of the above-entitled application, in communications with the previous Examiner, Mr. Daniel Wasil, describes Invention

1 which involves "an apparatus and method for producing a vibrational frequency of a cathode".

The wording and scope of the claims maintain the wording and scope of the original disclosure and claims. Furthermore, these comply with the Federal Appellate Decision 00-1107 [11/2000] in the parent of this application.

Therefore, the Applicant requests that the Examiner reconsider because the Examiner's response is demonstrated to be inconsistent with the Office's previous actions and inconsistent with those of the Federal Court. The Applicant requests that the Examiner explain reason for his statement if he disagrees.

58. The Examiner states that the applicant presents neither working examples nor description of an operating embodiment nor specific direction or guidance as to how to achieve the claimed results.

THE TRUTH - Operability is Demonstrated

First, the Examiner is incorrect. Operability was demonstrated and corroborated by declarations and testimony of individuals with "ordinary skill-in-the-art" which were, and are again, supplied, refuting the Examiner's (unsupported) position, including Rotegard(A75), Swartz(A18,A77), Bass(A62), Fox(A72), and Mallove(A66), Kurzweil(A80), Ahern(A78), and Miles(A79); also A18,A44,A49,A85). Said Declarations included facts showing why the publications cited should not bar the grant of a patent to the inventor or the confirmation of the patentability of the claims of the patent. Applicant showed due diligence, and all Exhibits, and Declarations were satisfactorily explained. [24 FR 10332, Dec. 22, 1959; 34 FR 18857, Nov. 26, 1969; para.(a), 48 FR 2713, Jan. 20, 1983, effective Feb. 27, 1983; para. (a), 50 FR 9381, Mar. 7, 1985, effective May 8, 1985; 50 FR 11366, Mar. 21, 1985; 53 FR 23733, June 23, 1988, effective Sept. 12, 1988; para. (a)(1) revised and para. (a)(2) added, 60 FR 21043, May 1, 1995, effective May 31, 1995]. The Declarations factually demonstrate proof of operability and utility - that is, enablement.

AFFIDAVITS OVERCOMING REJECTIONS 1.131 (a)(1) When any claim of an application or a patent under reexamination is rejected on reference to a foreign patent or to a printed publication, the inventor of the subject matter of the rejected claim ... may submit an appropriate oath or declaration to overcome the patent or publication.

Second, the Examiner's response is disingenuous both with respect to the present Application and the other of Applicant's inventions cited by the Applicant.

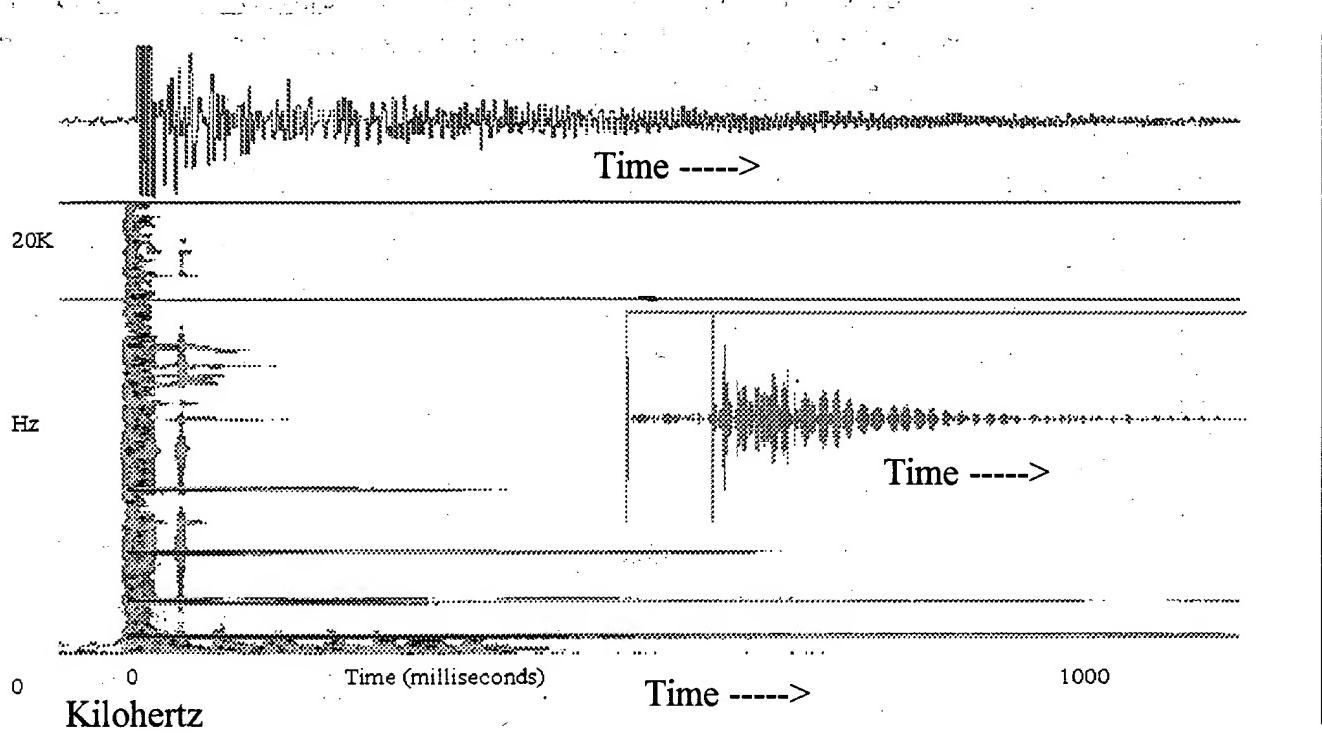
"An original specification can also incorporate by reference subject matter disclosed in another patent application which is pending before the Patent Office and hence unavailable to the public."

[In re Jolles; United States Court of Customs and Patent Appeals, 1980, 628 F.2d, 1322, 206 USPQ 885]

S.N. 07/371,937 [presently S.N 09/750,480 as a Continuation (hereinafter '480)] teaches means to monitor loading by a vibration frequency of the loaded material. The cited isses are discussed fully therein. The invention is a method for monitoring a fuel located within ("loaded") a material, like a sponge fills with water. The method uses a vibration of the material. The invention [Appl. 07/371,937, Appendix to 00-1107 as pages Appendix 160-189, hereinafter A160-189] solves the long-standing problem of measuring the loading remotely and non-invasively - features of great utility. The original disclosure taught the preferred embodiment, the vibrational cathode (A166-A167), monitoring subsystems (A168-A170), viscosity, damping, surface materials (A169), and coupling to a large mass. The equations of motion conform to known physics (A170-A173). The teachings in the original specification included an analysis of the vibratory motion, with discussion of the impact of loading, solution viscosity, and damping, conforming to known physics (A170-A173).

De Jure Proof that the Examiner is Wrong

59. Applicant first taught in the original specification and claims how his apparatus works and has presented objective evidence that vibrations have natural frequencies that can be used to monitor loading of a vibrating electrode. Because of the long delay of the PTO, and in the interest of promoting science and education, Applicant has thereafter revealed part of the teachings of the present invention through a series of technical scientific publications in the peer-reviewed literature. In particular, demonstrating said examination of an electrodes by vibrational frequency monitoring has been the article, Swartz, M., 1996, "Possible Deuterium Production From Light water excess enthalpy experiments using Nickel Cathodes", *Journal of New Energy*, 3, 68-80 (1996). In said article [Figure 5 in said paper in *Journal of New Energy*, 3, 68-80 (1996)] is a figure which is reproduced here as an Exhibit demonstrating a method of monitoring vibrational normal modes (ie. frequencies) of an electrode. The figure shows the natural (normal) vibrations of an electrode as a function of frequency and time. The figure demonstrates that said vibrational modes can be made to exist in an apparatus, and demonstrates "in full color" operability.



Vibration Spectroscopy of Nickel Cathode

Figure 1 - This figure shows the vibrational frequencies (often called "normal modes" to those skilled in the art) of a nickel cathode (92505b/NiB₂; ordinary water) as a function of frequency and time. After beginning the vibration with a single pulse at t=0, the vibrational modes are shown after fast fourier transform [calibration signal at 17,390^{+/-53} Hz.; sampling rate was ~100 kHz; after Swartz, M., 1996, *Journal of New Energy*, 3, 68-80 (1996), based upon US Patent Application Serial No. 07/371,937 Filed: 06/27/89]. This figure demonstrates that the teachings of the above-entitled application and claims were sufficient to enable the building of a device which monitors the electrode mass using said vibrational modes. This figure demonstrates that the Examiner should admit that the vibrational modes are not "incredible" but can be elicited when using the teaching of the original specification and claims. This figure proves that vibrations of the cathode are not unproven "theory", but can be mapped out as a function of frequency and time.

Electrodes can vibrate, by using the teachings of S.N 09/750,480. Attention of Examiner is directed to the Declarations (A18, A44) and figure 1 from Swartz, M., "Possible Deuterium Production From Light water excess enthalpy experiments using Nickel Cathodes", *Journal of New Energy*, 3, 68-80 (1996). Said Figure 1 demonstrates both utility and operability (a question of fact). Figure 1 convincingly demonstrates monitoring vibrational frequencies ("vibrations") of an electrode. It shows the actual vibrations (called "normal modes" by those skilled-in-the-art) of the electrode as a function of frequency and time using the teachings of the above-entitled application and claims. Figure 1 demonstrates that said vibrational modes - as taught in the original specification and claims - can be made to exist, and monitored. Figure 1 demonstrates that the vibrational modes can be elicited by using the teachings of the original specification and claims to monitor an electrode, and confirms utility and operability.

De Facto Proof that the Examiner is Wrong

60. Second, the Declarations in the record, and now re-submitted, counter the disingenuous statements by the Office. They substantially, extensively, and fully address matters and all issues that are criticized by the Office. The Declarations contain factual statements directly addressing how the specification adequately described the subject matter recited in the claims. They demonstrate that a person of ordinary skill in the art would have understood the inventor to have been in possession of the claimed invention at the time of filing, and that the invention operates as stated, and as explicitly taught in the original specification and claims. The Declarations prove that the Applicant taught in the original specification and claims how his apparatus works and claimed the invention.

The Affiants, skilled-in-the-art, state that the "environment" in which the above-entitled invention operates "does exist" and that there is evidence of "heat" and "loading". The Declarations include the Straus (4/22/94), Swartz, and other Declarations, including but not limited to the Amicus Curiae Briefs of Edmund Storms (2/21/01), Talbot Chubb (2/22/01), Eugene Mallove (3/24/00) and Hal Fox (2/21/01) and Affiants who have been the Office's own witnesses.

The Straus declaration, and others, contained statements of fact directly addressing the issue of whether the specification adequately described the subject matter recited in the claims, whether it operated as stated, and whether a person of ordinary skill in the art would have understood the inventor to have been in possession of the claimed invention at the time of filing. As such said Declarations contain averments regarding evidence establishing the utility, validation, and operability of the present subject matter. Specifically, the Declarations demonstrate that with respect to vibration of the electrode -- the present invention works [For example, confer pages 6-10, 19-21 in the Swartz Declarations of September 8, 1992, and pages 2-5 in the Straus Declaration of November 27, 1992]. The Straus, Swartz, and other Declarations demonstrated teachings of the vibrational modes of the electrode as objective evidence regarding utility and enablement as explicitly taught in the original specification and claims. Thus, the Declarations, specifically provided as evidence supporting the Applicant's position, have proven that an adequately written description requirement is met and they precisely refute the Decision's statements which are erroneous on these issues of operability and utility. Both enablement and validation have been shown by Declarations.

Given that understanding this was sufficient for the Declarants, where is the Examiner's substantive response to Applicant's cited Declarations? Applicant specifically now cites the Swartz declaration, the Declaration of Straus (4/22/94), and the *Amicus Curiae* Briefs of Drs. Edmund Storms (2/21/01), Talbot Chubb (2/22/01), Eugene Mallove (3/24/00) and Hal Fox (2/21/01) and requests the Examiner's response with specificity.

61. To rebut the Examiner, the Applicant hereby submits several Declarations by those skilled-in-the-art. The Declarations substantially and fully address all matters and issues criticized by the Examiner, and contain averments regarding evidence establishing the utility, validation, and operability of the Applicant's claimed subject matter. These include the Straus (4/22/94), Swartz, and other Declarations, including but not limited to the *Amicus Curiae* Briefs of Edmund Storms (2/21/01), Talbot Chubb (2/22/01), Eugene Mallove (3/24/00) and Hal Fox (2/21/01). Said Declarations are hereby accompanied by statements supporting their introduction including full and explicit showing of good and sufficient reasons why they were not presented earlier (including that they are already in the preceeding file folder).

The Declarations contain factual statements directly addressing how the specification adequately described the subject matter recited in the claims. The Declarations prove that the Applicant taught in the original specification and claims how his apparatus works and claimed the invention. The Declarations demonstrate that a person of ordinary skill in the art would have understood the inventor to have been in possession of the claimed invention at the time of filing. The Declarations demonstrate that the invention operates as stated, and as explicitly taught in the original specification and claims.

62. Validation occurs when scientists actually skilled, and working, in the state-of-the-art state it to be so. Said scientists write the scientific technical papers which undergo peer-review, file the patent applications, and attend international conferences (which have gone on for 13 years), and scientists disagree with the Examiner. Therefore, the Examiner must not err by failing to consider those skilled-in-the-art who counter the rejection under 35 U.S.C. §112 and §101 because the Declarations demonstrate utility and operability as taught in the original specification and claims.

Furthermore, the Declarations demonstrate that with respect to vibration of the electrode -- the present invention works (A18-A43, A44-A48) as explicitly taught in the original specification and claims. As such, said Declarations contain averments regarding evidence establishing the utility, validation, and operability of the Applicant's claimed subject matter. Said Declarations and almost four hundred references, constitute a *bona fide* case. They demonstrate validation, operability, and utility of the Applicant's claimed subject matter as correctly taught in the original specification and claims regarding said monitored vibrating electrode. Straus (A44-A48) and Swartz (A18-A43) contained factual statements directly addressing how the specification adequately described the subject matter recited in the claims of S.N 09/750,480 and demonstrate that it operates as stated. They also herald that a person of ordinary skill in the art would have understood the inventor to have been in possession of the claimed invention at the time of filing. Simply put, the post-filing references establish that, as of the filing date, one of skill-in-the-art could use a method to monitor a vibrating electrode without undue experimentation. Vibrational modes of a material are not "incredible" (A144) but can be elicited when using the teaching of the original specification and claims. Vibrations are not unproven "theory" (A153) as the Examiner disingenuously purports.

Applicant asks the Examiner to please reconsider this matter, or explain his deviation from In re Jolles, and his ignoring the submitted Declarations and Exhibits.

63. The Examiner states,

"On page 7, it paragraph, the applicant states that mechanical system enables the cathode to vibrate between displacements. There is neither a written description nor enabling disclosure of this mechanical system."

THE TRUTH - These Examiner Is Disputed

The Examiner is disingenuous, with respect to the present Application [which will be discussed in detail below] and with respect to the Declarants who prove enablement and herald that the Office had better explain the Examiner's disingenuous statement.

As the present Application states,

"Figure 1 is a simplified three-dimensional diagram of the reaction monitoring system, showing an electrochemically loading system ("reaction system") containing the vibrating cathode, and accompanied by the optical monitoring system and the orthogonal magnetic pumping coil.

Within the reaction chamber (labeled as number 16) is the platinum anode (labeled a number 60), and the palladium cathode (labeled as number 1). These electrodes are driven by an external electrical power system (labeled as number 50).

The cathode (labeled as number 1) has a variety of positions of which three are shown. These displacements are greatly magnified in Figure 1. For simplicity the reactor (16) is filled to the top. ... When this novel cathode does move, it interferes with an optical beam (labeled as number 12 in Figure 1)."

The original specification teaches (page 4, line 32 through page 5, line 3), the best mode contemplated by the inventor of carrying out his invention using an optical subsystem (referring to the figures).

"The optical beam originates from an optical laser contained in an optical irradiator subsystem (labeled as number 30) and is detected electrooptically by a optical detection subsystem (labeled as number 31).

The original specification teaches (page 5, lines 5-8) and elaborates for those skilled in the art to make and use the subject matter defined by each of the rejected claims.

"The repetitive cut-off of the optical beam occurs due to the physical displacement of the cathode during an oscillation as described herein. These oscillations may occur during the loading of said cathode, or may occur periodically."

The original specification (page 5, lines 8-12), continues with the teaching of how the vibrational frequency relates to the loading.

"The mass of the fusion cathode (increasing by adsorption of deuterons) increases antecedent to nuclear fusion, and results in a decreasing of the frequency of said oscillation (vide infra). The mass is derived from the decrease in oscillation frequency."

The original specification teaches (page 5, lines 13-18), the best mode contemplated by the inventor of carrying out his invention using detected vibration of the loaded electrode (referring to the figures).

"The frequency information is collected, and all the subunits are driven, by a central control unit (labeled as number 23). Said control unit also powers the means to drive said vibrational frequency, consisting of a power source (labeled as number 42) and a coil (labeled as number 41, of which only a few turns are shown in Figure 1) "

"Because the natural frequency can be counted with a laser beam and photodetector (coupled to a trigger and frequency counter), an accurate in situ determination of frequency is possible."

The original specification continues (page 5, lines 23-25) with the teaching of the determination.

"The cathode can be modeled as a pendulum, and any analysis is simplified by considering that most of the mass resides in the large terminal portion of said cathode (labeled as number 1). The analysis can be derived from Newton's Law, from the viscous damping force, and the approximation that the cathode behaves similar to a basic mass/spring-type system."

PEER-REVIEWED PUBLICATIONS PROVE ENABLEMENT

64. Supporting utility and operability and demonstrating enablement of the present invention, the Applicant submits (and has previously submitted) his publications involving the present invention, which have been published in the peer-reviewed hot fusion journal of the American Nuclear Society [including Swartz, 1998, Improved Electrolytic Reactor Performance Using π -Notch System Operation and Gold Anodes, Transactions of the American Nuclear Association, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85 and Swartz. M., 1997, Fusion Technology, 31, 63-74, hereafter "Swartz(97)" and also Swartz, M., "Possible Deuterium Production from Light Water Excess Enthalpy Experiments Using Nickel Cathodes", *Journal New Energy*, 1, 3, 68-80 (1996)[hereinafter Swartz(96)]. Swartz(97) [Fusion Technology, 31, 63-74, 1997], proves utility and operability and demonstrate enablement for a person with ordinary skill-in-the-art. These papers, including Swartz(97) and the other publications, are submitted again, and are listed on Forms 1440. The Applicant has assumed that they were already in the record, but are now again necessary because of the misstatements by the Examiner. Swartz (98) and Swartz(97) and the other peer-reviewed publications demonstrate that the invention was correctly taught in the original specification and claims on the filing date of the application [validation].

65. Applicant's publications in peer-reviewed journals have taught the desired reactions and system operation [Swartz, M., "Generality of Optimal Operating Point Behavior in Low Energy Nuclear Systems", *Journal of New Energy*, 4, 2, 218-228 (1999); Swartz, et alia, "Importance of Non-dimensional Numbers and Optimal Operating Points in Cold Fusion", *Journal of New Energy*, 4, 2, 215-217 (1999); Swartz, 1997, "Consistency of the Biphasic Nature of Excess Enthalpy in Solid State Anomalous Phenomena with the Quasi-1-Dimensional Model of Isotope Loading into a Material", *Fusion Technology*, 31, 63-74; Swartz, 1998, "Optimal Operating Point Characteristics of Nickel Light Water Experiments", "Proceedings of ICCF-7"; "Codeposition Of Palladium And Deuterium", ibid; Swartz, 1998, Improved Electrolytic Reactor Performance Using π -Notch System Operation and Gold Anodes, *Transactions of the American Nuclear Association*, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85; Swartz, 1997, "Biphasic Behavior in Thermal Electrolytic Generators Using Nickel Cathodes", IECEC 1997 Proceedings, #97009; Swartz, 1998].

66. Furthermore, Applicant's publications in peer-reviewed journals have taught standards and quality control ("Q/C") which are relevant to experimental operability ["Patterns of Failure in Cold Fusion Experiments, Proceedings of the 33RD Intersociety Engineering Conference on Energy Conversion, IECEC-98-I229, Colorado Springs, CO, 1998; Swartz, M, 1997, "Noise Measurement in cold fusion systems, Journal of New Energy, 2, 2, 56-61; Swartz, 1996, "A Method To Improve Algorithms Used To Detect Steady State Excess Enthalpy", Transactions of Fusion Technology, 26, 156-159; Swartz, 1993, "Some Lessons from Optical Examination of the PFC Phase-II Calorimetric Curves", 2, Proceedings: "Fourth International Conference on Cold Fusion", 19-1, op. cit.; Swartz, 1996, "Relative Impact of Thermal Stratification of the Air Surrounding a Calorimeter", Journal of New Energy, 2, 219-221 (1996); Swartz, 1996, "Improved Calculations Involving Energy Release Using a Buoyancy Transport Correction", Journal of New Energy, 1, 3, 219-221; Swartz, 1996, "Potential for Positional Variation in Flow Calorimetric Systems", Journal of New Energy, 1, 126-130; Swartz, 1997; Swartz, 1996, "Definitions Of Power Amplification Factor", J New Energy, 2, 54-59, and Swartz, 1997, "Explanations for Some Differences Between Reports of Excess Heat in Solid State Fusion Experiments", J New Energy, 2, 1, 60-65].

67. Applicant's publications in peer-reviewed journals are evidence demonstrating that he has correctly taught operability and enablement [Swartz. M., 1994 "Catastrophic Active Medium Hypothesis of Cold Fusion", Vol. 4. "Proceedings: "Fourth International Conference on Cold Fusion", sponsored by EPRI and the Office of Naval Research, and Swartz, M., 1997, "Hydrogen Redistribution By Catastrophic Desorption In Select Transition Metals", Journal of New Energy, 1, 4, 26-33, but also Swartz, M, 1998, Improved Electrolytic Reactor Performance Using π -Notch System Operation and Gold Anodes, Transactions of the American Nuclear Association, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85]. These prove utility and operability (a question of fact).

68. Applicant's publications in peer-reviewed journals confirm operability as taught years earlier in the original specification and claims. Attention is directed to the fact that Applicant's publications in peer-reviewed journals are NOT press releases unlike those whom the Examiner cites as segue to bring in other much less relevant art. Applicant's publications are peer-reviewed and therefore they demonstrate validation, utility, operability, and enablement as taught in the above-entitled original specification and claims. Therefore, enablement has been

shown both by the Declarations and by said Peer-reviewed Publications [*Fusion Technology*, 22, 2, 296-300 (1992), *Fusion Technology*, 96, 4T, 74-77 (1994), *Fusion Technology*, 32, 126-130 (1997), *Fusion Technology*, 31, 63-74 (1997), *IECEC 1997 Proceedings*, paper #97009, *Transactions of the American Nuclear Association* (1998; ISSN:0003-018X) 78, 84-85; *MIT RLE Progress Report*, 139, 1, 1-13 (1997), and *Fusion Technology*, 31, 228-236 (1997), *IECEC-98-I229* (1998), *Journal of New Energy*, 2, 2, 56-61 (1996), *J New Energy*, 2, 54-59 (1996), *Transactions of Fusion Technology*, 26, 156-159 (1994), *Journal of New Energy*, 2, 219-221 (1996) *Journal of New Energy*, 1, 3, 219-221 (1996); *Journal of New Energy*, 1, 126-130 (1996), *J New Energy*, 2, 54-59 (1997), *J New Energy*, 2, 1, 60-65 (1997). These Exhibits, like the Declarations, demonstrate validation, operability, and utility as taught in the original specification and claims regarding said vibrational mode of the electrode. They also demonstrate quality control and quality assurance necessary for validation and operability. Applicant requests the Examiner now responsd to these proofs in the record supporting Applicant regarding operability and utility. Applicant requests that the Examiner address this with specificity.

CRITICAL FEATURES

69. The Examiner states,

"*the disclosure is insufficient in failing to disclose said additional critical feature(s), components), etc., necessary to cause applicant's invention to operatively function in a different manner to produce a result different from that of said references.*"

Regarding differences from the cited art, the Examiner is referred to the above discussions of said art. Furthermore, as regards differences from the Examiner's cited cold fusion art, there are several additional differences which the Applicant has already submitted to the Examiner several times already. Nonetheless, without minimizing any of the others not cited, they include the following:

- 1) Loading minima
- 2) Control of Loading Flux
- 3) Optimal Operating Points
- 4) Barriers

These are discussed in the pending applications, in the published papers submitted over and over to the Office and ignored, and again futher below in detail.

LOADING AND PATTERNS OF FAILURE

70. Loading should be clearly understood to an Examiner who purports to have a doctorate, as it is to other professions and those skilled-in-the-art. Therefore, it is wrong to purport "loading" is the same as "nuclear" anything. However, it is especially important to note that loading is a *sine qua non* for the desired reactions, and that there has been insufficient mention of loading achieved in many of the so-called "negative results" studies upon which the Examiner relies. The proper loading required must usually be in excess of the values mentioned in Examiner's art [and not even mentioned in the majority of the papers which were cited by the Examiner]. Many "negative" results may be, in part, due to inadequate loading, and/or the failure to monitor said loading of isotopic fuel as shown in Figure 1 from the Applicant's peer-reviewed published paper, "Patterns of Failure..." (Swartz 98B).

The invention at issue in this case, generally speaking, uses a metal such as palladium which has the unique property of internally filling ("loading") with hydrogen, as a sponge fills with water. Loading of a material (palladium) with a hydrogen is neither unproven "theory" nor "incredible" as the Examiner falsely writes, but can be elicited using the teachings of Applicant's other specifications and claims, as cited. Applicant taught how to introduce fuel ["load"] as claimed. As Dr. Scott Chubb stated, in his Amicus Brief,

"...each deuterium nucleus (D) may effectively dissociate from its electron and freely flow through the metallic substrate ... these nuclei ... are free to move throughout a crystal lattice"

71. Applicant has discussed loading in considerable detail in several cases before the Office, and these were even understood by the Federal Appellate Court. Applicant did refer to said applications and cases in the present application. Loading is discussed in each of the referred to patent applications of the Applicant. Applicant's loading technology, consistent with conventional physics, has been published in peer-reviewed journals [Swartz, M., Fusion Technology, 22, 2, 296-300, 1992; 26, 4T, 74-77, 1994; 32, 126-130, 1997; Hagelstein, Swartz, MIT RLE Progress Report, 139: 1, 1-13 (1997); Swartz, Fusion Technology, 31, 228-236 (1997); ICCF-4, (1994); J.New Energy, 1,4,26 (1997); M.Swartz, 1992, "Quasi-One-Dimensional Model of Electrochemical Loading of Isotopic Fuel into a Metal", Fusion Technology, 22, 2, 296-300; Swartz, M., 1994, "Isotopic Fuel Loading Coupled To Reactions At An Electrode", Fusion Technology, 96, 4T, 74-77; "Codeposition Of Palladium And Deuterium", Fusion Technology, 32.

126-130 (1997); Swartz, 1994, "Generalized Isotopic Fuel Loading Equations", and "Cold Fusion Source Book", International Symposium On Cold Fusion And Advanced Energy Systems", Ed. H.Fox, Minsk, Belarus; Swartz, 1997]. These are proof and confirmation of Applicant's teachings and demonstrate and confirm enablement of those teachings.

72. The Examiner states,

"On page 7, it paragraph, the applicant states that mechanical system enables the cathode to vibrate between displacements. There is neither a written description nor enabling disclosure of this mechanical system."

THE TRUTH - Normal Modes

In differential calculus, there are known to be "normal modes" to those skilled-in-the-art.

The Examiner's statement suggests that he may not be familiar with the calculus and engineering.

The Examiner is referred to Figure 1 which demonstrates the higher frequencies.

The Examiner is also referred to "Advanced Calculus for Applications, Second Edition" by Francis Hildebrand (1976). On pages 72 through 76, and also page 88, in the section entitled "Applications to Linear Differential Equations with Constant Coefficients", there is discussed the equations that lead to these normal modes.

In addition, the Examiner is referred to "Theoretical Mechanics: An Introduction To Mathematical Physics" (1929) by Joseph Ames and Francis Murnaghan. The examiner is specifically referred to pages 24 pages 124 to 139 for background on the well-known harmonic vibrations (especially page 129).

In addition the Examiner is referred to "Analytical Mechanics" (1962) by Grant Fowles. The Examiner is specifically referred to pages 80 through 84 for that harmonic analytic physics, including the elementary issues resulting from restoring force, on pages 43 through 45.

The examiner is referred to "Calculus and Analytical Geometry" (1951, and 1960) by George Thomas Jr. The examiner is particularly referred to pages 895 through 900 for more background on natural frequencies which apparently were not a problem for the previous Examiner, or the Declarants, or even the Board and federal court.

73. The Examiner states,

"On page 10, line 5 of the specification, the applicant provides an unnumbered equation of motion. The disclosure is insufficient as to how and in what manner the values of the constants, k and b, are evaluated, and what approximations, if any, are used in their evaluation."

THE TRUTH - Differential Equations

First, the Applicant thanks the Examiner for pointing out about the equations, which are now numbered.

Second, the Examiner is incorrect because the specification states,

"The equation of motion is ... where k is the first order spring constant characterizing the cathode, and b is the parameter relating frictional force exerted by the solution upon the cathode to the velocity of said cathode. By Stokes' law, the parameter "b" is closely related both to the viscosity of the solution in the reactor and the size of the cathode perpendicular to the velocity of said cathode ("A")."

The solution to the equation of motion is that of a damped sinusoid, with a natural angular frequency of a damped oscillator."

In differential calculus and elementary mechanics, these constants are well known - including to all college freshmen (and women).

The Examiner's statement suggests that he may not be familiar with elementary mechanics.

The Examiner is also referred to "Advanced Calculus for Applications, Second Edition" by Francis Hildebrand (1976). On pages 72 through 76, and also page 88, in the section entitled "Applications to Linear Differential Equations with Constant Coefficients", there is discussed these equations.

In addition, the Examiner is referred to "Theoretical Mechanics: An Introduction To Mathematical Physics" (1929) by Joseph Ames and Francis Murnaghan. The examiner is specifically referred to pages 24 pages 124 to 139 for background on these equations.

In addition the Examiner is referred to "Analytical Mechanics" (1962) by Grant Fowles for the physics resulting from restoring force.

The examiner is referred to "Calculus and Analytical Geometry" (1951, and 1960) by George Thomas Jr., including pages 895 through 900 for more background on a matter that was not a problem for the previous Examiner or the Declarants.

74. The Examiner states,

"Also, the associated Fig. 1 depicts the cathode as being structurally held and pivoting at a single location at the top of the chamber. The disclosure is insufficient as to how and in what manner the effect of friction at the pivot point is taken into account in the equation."

"There is neither an adequate description nor enabling disclosure of... mechanical means to support the cathode at a pivot point, etc."

THE TRUTH - Pendula

If the Examiner paid attention in high school physics, he would have learned that there is no lateral motion at the pivot point. Therefore, there is no velocity (except rotational). There is no friction at that point classically since there is no lateral velocity.

Since the Examiner appears to be not familiar with this either, and since this is important and well known to those skilled-in-the-art, the Applicant sends with this response, excerpts from a few books. The Examiner is referred to "Advanced Calculus for Applications, Second Edition" by Francis Hildebrand (1976).

In addition, the Examiner is referred to "Theoretical Mechanics: An Introduction To Mathematical Physics" (1929) by Joseph Ames and Francis Murnaghan.

In addition the Examiner is referred to "Analytical Mechanics" (1962) by Grant Fowles.

In summary, it is inaccurate for the examiner to glibly hold up this technology for reasons unclear and unscientific.

75. The Examiner states,

"On page 11, line 3 of the specification, the applicant shows an unnumbered equation for the square of the natural frequency. The disclosure is insufficient how and in what manner this equation can be derived from the unnumbered linear natural angular equation on page 10 and the quality factor Q at the top of page 11."

THE TRUTH - Q Factor

The equation is now numbered. The disclosure is clear to anyone.

The specification states,

"The next table (Table 1) relates the above equations and shows that the natural frequency of said cathode is dependent upon the viscous factor, it is only significantly altered at very high viscosity (where the Quality factor approaches zero). In the air, b would be very small, but under the conditions of the desired reactions, it is not zero within the heavy water solution. However, said viscosity is small to begin with, and the variation of viscosity with temperature shows a decrease with increasing temperature"

rise. The result is that the viscous damping further decreases as the loading process proceeds."

The Examiner is referred to "Advanced Calculus for Applications, Second Edition" by Francis Hildebrand (1976, there is discussed the impact of viscosity as is discussed in the above entitled application.

In addition, the Examiner is referred to "Theoretical Mechanics: An Introduction To Mathematical Physics" (1929) by Joseph Ames and Francis Murnaghan.

In addition the Examiner is referred to "Analytical Mechanics" (1962) by Grant Fowles.

In summary, it is inaccurate for the Examiner to purport lack of clarity when the original specification exactly describes what is involved, as discussed above.

76. The Examiner states,

"On page 12, 1St paragraph of the specification, the applicant states that an expected frequency change of approximately 6 to 10% of the initial frequency can be associated with full loading (a.k.a. nuclear fusion). The disclosure is insufficient as to providing examples of the detection of said frequency change."

THE TRUTH - The Examiner is Incorrect

The Examiner is apparently not accurate because the disclosure is clear to anyone [confer references cited below].

Second, the specification states the frequency change is associated with loading. The Examiner persists in substituting his own "inventions" in his work, with no basis of law or authority to do so.

Third, the Examiner is incorrect in his allegation, and appears to be not familiar with the calculus of pendula again. Since this is important and well known to those skilled-in-the-art, the examiner is referred to "Advanced Calculus For Applications, Second Edition" by Francis Hildebrand (1976). On pages 72 through 76, and also page 88, in the section entitled "applications to linear differential equations with constant coefficients", there is discussed the differences in frequencies, as is discussed in the above entitled application. The examiner is specifically referred to equations 28 through 37b which reveal these mathematics well-known to those skilled in the art.

In addition, the Examiner is referred to "Theoretical Mechanics: An Introduction To Mathematical Physics" (1929) by Joseph Ames and Francis Murnaghan. The examiner is specifically referred to pages 24 pages 124 to 139 for the well-known impact of mass on frequencies of harmonic vibrations.

In addition the Examiner is referred to "Analytical Mechanics" (1962) by Grant Fowles.

The examiner is referred to "Calculus and Analytical Geometry" (1951, and 1960) by George Thomas Jr. The examiner is particularly referred to pages 895 through 900, so he can understand these natural frequencies.

If the Examiner disagrees, the applicant asks for an explanation with specificity.

77. The Examiner states,

"There is neither an adequate description nor enabling disclosure of the parameters of a specific operative embodiment of the invention, including the exact composition of the electrolyte (including impurities and amounts thereon, atomic or weight ratio of metal electrodes to electrolyte)" "There is neither an adequate description nor enabling disclosure of the... temperature conditions inside the reaction cell and how these conditions are maintained within a given range "

THE TRUTH - Composition Of Electrodes And Solution Were Given

First, Applicant asks the Examiner to please reconsider this matter which involves this invention.

Second, the Applicant cited his other patent applications, consistent with In re Jolles. Reference to other patents is allowable. Applicant asks the Examiner to explain his deviation from In re Jolles.

"An original specification can also incorporate by reference subject matter disclosed in another patent application which is pending before the Patent Office and hence unavailable to the public."

[In re Jolles; United States Court of Customs and Patent Appeals, 1980, 628 F.2d, 1322, 206 USPQ 885]

Attention was also directed to Swartz (07/339,976; filed April 18, 1989, a specification pending before the Patent Office) and other Swartz applications pending before the Patent Office). Swartz (07/339,976) taught codeposition of palladium salts.

"the combination of palladium salts ... and the means to cathodically codeposit said materials directly onto a cathode.

[Swartz; US 07/39,976; April 18, 1989]

Third, the isotope ratios in the metal and loading, were discussed in the original specification of S.N. 07/760,970], and in the peer-reviewed articles [Swartz (1992), Swartz (1993), Swartz (1994)].

78. The Examiner states,

".. On page 12 of the specification, the applicant presents Table 1. The disclosure is insufficient as to the units of the quantities shown."

The Applicant believes that the Examiner is incorrect and that the units of mass, frequency, etc., are well known to those who are skilled in the art. The derived values used in the equations, which have now been numbered, in fact, do give the units through dimensional analysis. For example, K can be seen to have the units of Hertz*grams, as is shown in Equation 2. Similarly, for example, the Quality factor can be seen to be a dimensionless number by Equation 3.

79. The Examiner states,

"There is neither an adequate description nor enabling disclosure of atomic or weight ratio of metal electrodes to electrolyte,"

THE TRUTH - Nonsense By Examiner

If the Examiner wants to take the ratio of palladium to heavy water, he may, it is in the CRC as is known to any student, researcher, or scientist. The Examiner is either simulating a schizophrenic by creating "word salad", or is harassing the Applicant. The Examiner's comment has nothing to do with the present invention, a method of monitoring vibrational normal modes (ie. frequencies) of an electrode.

80. The Examiner states,

"There is neither an adequate description nor enabling disclosure of ... dimensional ratio of electrodes to their spacing (i.e., sizes of anode and cathode relative to the space between them),"

THE TRUTH - Further Nonsense By Examiner

If the Examiner wants to take the ratio of "dimensional ratio of electrodes to their spacing (i.e., sizes of anode and cathode relative to the space between them)", he reveals that he is again simulating a schizophrenic mindset by creating further "word salad" without foundation in science or English. What is the "dimensional ratio of electrodes"? What are the units of an "electrodes"? Could the Examiner mean the "size" of the electrode? Or does he mean weight? or does he mean Reynolds number? The Examiner is harassing the Applicant because the Examiner's comment has nothing to do with the present invention, a method of monitoring vibrational normal modes (ie. frequencies) of an electrode.

81. The Examiner states,

"There is neither an adequate description not enabling disclosure of... surface area-to-volume requirement for the reactor."

THE TRUTH - Nonrelevant Requirement By Examiner

If the Examiner wants to take the ratio of "surface area-to-volume requirement for the reactor", he again reveals that he is simulating a schizophrenic mindset by creating further "word salad". What is the "surface area-to-volume requirement for the reactor" in this context and exactly what does it have to do with a method of monitoring vibrational normal modes (ie. frequencies) of an electrode? Nothing. The Examiner's comment again has nothing to do with the present invention, a method of monitoring vibrational normal modes (ie. frequencies) of an electrode. The Examiner is harassing the Applicant for reasons unclear.

82. The Examiner states,

"There is neither an adequate description not enabling disclosure of ratio of masses 11 and 13 to each other"

THE TRUTH - Nonrelevant Requirement By Examiner

If the Examiner wants to take the ratio of "ratio of masses 11 and 13", he reveals that he does not understand elementary mechanics.

The Examiner's statement suggests that he may not be familiar with elementary mechanics.

The Examiner is also referred to "Advanced Calculus for Applications, Second Edition" by Francis Hildebrand (1976), "Theoretical Mechanics: An Introduction To Mathematical Physics" (1929), "Analytical Mechanics" (1962), and "Calculus and Analytical Geometry" (1951, and 1960).

83. The Examiner states,

"There is neither an adequate description not enabling disclosure of the thickness ratio of the "springy material" 13 to cathode 1"

THE TRUTH - Nonrelevant Requirement By Examiner

If the Examiner wants to take the ratio of "thickness ratio of the "springy material" 13 to cathode 1", he reveals that he does not understand elementary mechanics and again reveals that he may again may be simulating a schizophrenic mindset by creating further "word salad". What is the "thickness ratio of the "springy material" 13 to cathode 1"? and what does it have to do with a vibrational normal modes as discussed in the present application? Nothing. The Examiner is harassing the Applicant, or is again insisting on inserting his own inventions or ideas onto the Applicant for reasons unclear.

In fact, the Examiner's statement heralds his unfamiliarity with even elementary mechanics. The Examiner is referred to "Advanced Calculus for Applications, Second Edition" by Francis Hildebrand (1976), "Theoretical Mechanics: An Introduction To Mathematical Physics" (1929), "Analytical Mechanics" (1962), and "Calculus and Analytical Geometry" (1951, and 1960).

84. The Examiner states,

"There is neither an adequate description not enabling disclosure of the required magnetic strength of coil 41."

"There is neither an adequate description not enabling disclosure of the distance between the coil and the cell"

THE TRUTH - Magnetic Fields

This is well known to those skilled-in-the-art as the Declarants indicate. The Examiner is referred to the literature such as "The Physical Principles of Magnetism", Allan H. Morrish, John Wiley and Sons, New York, 1966, and the Amateur Radio Handbook, which will explain this further for the Examiner.

85. The Examiner states,

"There is neither an adequate description not enabling disclosure of the ... length of time the process has to (sic)carried out "

THE TRUTH - Nonscientific Requirement By Examiner

If the Examiner wants to know the "... length of time the process has to carried out", he reveals that he does know how a measurement device, or even a thermometer works after equilibrium. Once loading is achieved, the measurement can be made. What does the "*length of time the process has to (sic) carried out*" have to do with a vibrational normal mode measurement of loading? Nothing. The Examiner is patently harassing the Applicant.

86. The Examiner states,

"As further examples of this lack of enabling disclosure, the electrical power system (box 50 in Fig. 1), the optical irradiator subsystem (box 30 in Fig. 1), the optical detection subsystem (box 31 in Fig. 1), the central control unit (box 23 in Fig. 1) and the power source (box 42 in Fig. 1) are essentially "black boxes" with no description of the internals thereof."

THE TRUTH - In re Jolles

First, Applicant asks the Examiner to please reconsider this matter. The Applicant cited his other patent applications, consistent with In re Jolles. Reference to other patents is allowable. Applicant asks the Examiner to explain his deviation from In re Jolles.

"An original specification can also incorporate by reference subject matter disclosed in another patent application which is pending before the Patent Office and hence unavailable to the public."

[In re Jolles; United States Court of Customs and Patent Appeals, 1980, 628 F.2d, 1322, 206 USPQ 885]

Those skilled in the art know how to connect an anode and cathode and furthermore, attention was also directed to Swartz (07/339,976; filed April 18, 1989, a specification pending before the Patent Office). Swartz (07/339,976) taught the use of a current source [FUSOR brand, JET Energy Technology, Wellesley, MA]. '457 and the cited papers gave full disclosure of voltage and current requirements. The voltage and current requirements are discussed in the original specifications to which the present application does refer, including in the referred-to Application ['457] on page 15, lines 15-20, therein, along with Figures 4, 5, 6 which show the voltage, and the electrical power and power gain (which are the more important engineering parameters); confer also Swartz (97A, 98A).

The original specification was clear and sufficient for the affiants, and the previous Examiner: Wasil, and the court. As the specification states,

"The optical beam originates from an optical laser contained in an optical irradiator subsystem (labeled as number 30) and is detected electrooptically by an optical detection subsystem (labeled as number 31). The photodetector and associated equipment are not shown in this figure."

"The repetitive cutoff of the optical beam occurs due to the physical displacement of the cathode during an oscillation as described herein. These oscillations may occur during the loading of said cathode, or may occur periodically. The mass of the cathode (increasing by adsorption of deuterons) increases antecedent to the desired reactions, and results in a decreasing of the frequency of said oscillation (vide infra). The mass is derived from the decrease in oscillation frequency."

87. The Examiner states,

"This concept of producing nuclear reactions by "cold fusion" was in general, publicly announced by Fleischmann and Pons (hereinafter referred to as "F and P") on March 23` 1989 (see the 3/24/89 article by D. Brasten). Applicant's invention is thus, at most, no more than a variation of the cold fusion concept or system set forth by F and P."

TRUTH - The Examiner's Argument is cut from cloth other then THIS application

With this dogma, the Examiner deviates from the present invention and refers to other art, located far from the original specification and claims. Such handwaving to other much less relevant art is not a fair rebuttal, but is a different issue cut of a cloth not even made from the original specification and claims. Enablement, on the other hand, must be judged on this original specification and claims. The Examiner attempts, under color of section 112, ¶1, to focus on "excess heat" and nuclear reactions, which the Examiner and his references declare was misreported by FP. However, the words "excess heat" do not even appear in the original specification or in any of the claims.

First, only by misstating the claims and the specification, can the Examiner dare to substitute the word "nuclear fusion" for vibration". However, the invention (in structure, operation and composition) is defined by the claims and the original specification. The present invention is about a vibrating electrode as taught in the original specification and claims [07/371,937; Original Specification, pages 7-8 and elsewhere in the Continuation, '480]. In fact, it is only by calling the present invention "cold fusion", instead of a method to monitor loading by vibration, can the Examiner purport that "vibration" is "unattainable".

Second, furthermore, it is only by deliberately misleading can the Examiner continue the unfounded attack on the Applicant, by the much less relevant art attacking "FP". The present invention is not the work of Pons/Fleischmann or their purported subject matter. Therefore, the Examiner's continual reference to other much less relevant art is not a rebuttal of this invention, it is neither proper nor fair, because it is a systematic unconstitutional prejudicial attack against the Applicant by the supervisors of the Examiner. There is the appearance of impropriety in the Office.

Third, in fact, if the Examiner must rely upon reference to art cut of a cloth other than this specification and claims, then his position must indeed be quite weak.

88. Given the extensive "positive" published results which confirm the generation of products (including excess enthalpy) using isotopic fuel loaded into a material, the applicant therefore respectfully requests that the Examiner reconsider the rejection and address the Applicant with precision and specificity.

The Examiner should examine the three (3) videos which Applicant sent [CBC (1993), CBC (1994); BBC (1994)] to the file folder, of which this application is a Continuation. Said videos rebut the Examiner.

The Examiner should examine the ~300 published scientific articles which Applicant sent [over 140 pounds of Exhibits] including over 30 of the Applicant's own peer-reviewed papers (several published by the American Nuclear Society, Fusion Technology) which were submitted. Important publications included Swartz(92), Swartz(94A), Swartz (97A) and Swartz(99), but also Mallove pp.246-248, Storms(90,93); Arata(90); Celani(90); Pons(90); Bockris(90); Szpak(91B); McKubre(91); Will(91,93,94), Miles(94C,91,93B,94C); and McKubre, SRI ["Summary During ICCF-7", Infinite Energy, 4, 20, pp.34-35, (1998)]. The Exhibits are in the file folder. Instead, the Examiner --ignoring all previous responses of the Applicant, and ignoring that the US is at War-- glibly relies on already-rebutted "reports" from "science" reporters and those competing for Federal funds. None of the Examiner's witnesses have been sworn in, nor have they been proven to be expert. By contrast, several of the Office's "witnesses" have thereafter taken the time to write Amicus Curiae Briefs and letters to the effect that the Examiner has absolutely missated what they wrote or implied.

== ERROR BY EXAMINER REGARDING COLD FUSION

89. The post-April 1990 literature supports the "existence" of the "cold fusion" effect(s). Much peer-reviewed, and other, art is available in Fusion Technology, Fusion Facts, and other journals. These, and Swartz, 1998, Improved Electrolytic Reactor Performance Using π -Notch System Operation and Gold Anodes, Transactions of the American Nuclear Association, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85, dispute the Office. The chief product of the cold fusion reaction(s) is excess heat, but other released particles have also been reported {including tritium [Srinivasan, Current Science, 143 (1991); Storms, Fusion Technology, 17, 680 (1990)], sparse neutrons [Gozzi, J. Fusion Energy, 9, 241 (1990); Menlove, J. Fusion Energy, 9, 495 (1990)], helium-4 [Bush, J. Electro. Chem., 304, 271 (1991)], and possibly heavy elements [Matsumoto, Fusion Technology, 20, 323 (1991)]}. Can the Examiner read all 10 volumes of the *Cold Fusion Times* and honestly state that the field does not exist?

90. In an attempt to support the unfair rejection, the Examiner cites other art including very less relevant experimental and theoretical papers, and also some columns from periodicals and newspapers. Of said art, most are from 1989. Close

examination of said art reveals that all of said cited art appears to be dated before 1991.. Thus, and as demonstrated below, the papers cited by the Examiner are functionally "old" and out-of-date.

The applicant respectfully notes that there are many problems with reliance upon newspapers. First, examples of the failure of "headlines" to be fair representative appraisals of new technology include the following:

"... after a few more flashes in the pan, we shall hear very little more of Edison or his electric lamp. Every claim he makes has been tested and proved impracticable."

[New York Times, January 16, 1880]

Second, the paper [from 1989] cited {Stiff} reported possibly negative results in the Wall Street Journal. However recent issues from the very same Journal now report positive results (cf. Bishop). In the New York Times there has been a similar shift in position. The issue of November 17, 1992 {Pollack} demonstrates the reported positive results. See also Freedman (in Science), Dagani (Chemical and Engineering News), Chandler (Boston Globe), Schlesinger, Port, as well.

91. The papers cited by the Examiner are functionally "old" and out-of-date. Even the very newspapers which the Examiner has cited now publish updates which herald that there is increasing acceptance of, interest in, and growth of this field [cf. Freedman (Science 4/24/92), Chandler (Boston Globe 4/17/92)]. As a result, it is reported that scientists are "quite convinced that there is a source of heat" [Prof. Philip Morrison as reported in Chandler] and are "not concerned about the lack of neutrons (expected in a conventional) fusion reaction" [Prof. Louis Smullin as reported in Freedman]. Dagani (1992) now reports that growing numbers of the scientific community do take seriously the "excess heat". See also Chandler, Freedman, Bishop.

92. Several of the papers cited by the examiner are theoretical. Some of these "negative theoretical" citations calculate, using what may be incorrect or false assumptions and approximations, that fusion of isotopic fuel in a material, ie. cold fusion, can not "work" (eg. Ohashi, Cribier, Chapline). This is inaccurate. The applicant respectfully asks the examiner to reconsider, because in actual fact such calculations were historically presented "proving" that heavier-than-air ships (ie. airplanes) "cannot fly".

As another example: such calculations only created a virtual "drag" to the innovation of ideas, and their development and implementation, involving airships - which later evolved to include jets and spacecraft.

**"Professor Goddard ... does not know the relation of action to reaction
... he only seems to lack the knowledge ladled out daily in our high schools"**

[New York Times, January 13, 1920]

93. The Examiner is directed to the Office's citation of the NCFI report, and attention is now closely drawn to comments therein.

"Cold fusion work continues in many countries ... The occurrence of nuclear reactions in deuterium-loaded solids, such as palladium and titanium can no longer be reasonably denied. ... Several government laboratories are continuing their work on cold fusion, among them most notably are Los Alamos National Laboratories, The Naval Research Laboratory, The Naval Underwater Systems Command and The Naval Weapons Center. Significant positive results have been obtained in each of these laboratories. ... Over 100 groups from more than 12 countries have now reported on various types of evidence for the occurrence of nuclear reactions in deuterium-loaded metals or compounds."

[F. Will; Final Report National Cold Fusion Inst. (1991)]

NCFI efforts in-house in fact did support the existence of, and significant investment in, the "cold fusion" phenomena. The NCFI Report documented widespread examination of these phenomena.

Today, one of the most interesting papers in this field is from Mitsubishi delivered in China at the 9th International Cold Fusion meeting 4/02. The US is now 14 years behind other countries because of certain individuals in the US Patent Office who have denied allowance of valid patent applications, thereby systematically ignoring both Constitutional and Congressional directive.

== ERROR BY EXAMINER REGARDING ALIBAGLI

94. The Office states, to poison the record, despite previously-submitted unrebutted evidence from the Applicant,

"It is noted in this respect that there has essentially been a continuing stream of publications showing that virtually none of the scientific community consider the alleged positive results of cold fusion experiments as being confirmed. ... In this respect, Applicant's attention is directed to ... Alibagli et al ..."

"Hilts states that the MIT experiments failed to produce any of the excess heat reported by the Utah group."

THE TRUTH - The Examiner Knowingly Cites Fraud Again

Applicant respectfully notes that this was discussed extensively in the previous Communication with the Examiner including page 67. The Examiner cites Alibagli which contains PROVEN FRAUD as the Examiner ignores the US Navy, the US Air Force, NASA, RLE, the American Nuclear Society. It is inconsistent with Federal requirements of truth and accuracy that the Examiner again relies upon and give authority to papers which now have been shown to have major errors or have proven fraud. Several additional peer-reviewed publications (including Fusion Technology and J. Electroanal. Chem) have exposed many significant flaws in the cited so-called "negative" papers upon which the Office leans on. For example, independent analyses (Noninski, cf. also Mallove) indicate that the experiments of the Massachusetts Institute of Technology [MIT] and Lewis -- despite reported apparently "negative result" may have actually demonstrated excess heat in their experiments which utilized heavy water. Based upon his research, Noninski (93; 91B) has dismissed the references of Lewis, Miskelly, and those which cite early 1989 experiments at MIT's Plasma Fusion Center upon which the Examiner has so staunchly relied.

"Although much discussion was (and is still) devoted to whether ("cold fusion") is connected with any known nuclear reactions, the latter being widely questioned, there is no doubt that the general interest in the problem was provoked by the claim of the possibility of producing excess energy, i.e., energy surmounting the energy break-even value. Unlike the clearly negative indications so far in terms of known nuclear processes taking place, however, careful analysis reveals that the claims in the principal negative papers published so far with respect to the existence of excess energy are in disagreement with the raw experimental data whenever such is presented in those papers. This is very surprising indeed in view of the wide publicity these negative results have been given. An example of an improper analysis of their own experimental data by the

authors is Ref. 1 (MIT Plasma Fusion Center Paper, Alibagli et alia), which we have already discussed. (ref. 2) Other examples of inappropriate method and improper interpretation of their own experimental data are (Lewis et alia) and (Miskelly et alia)."

[V. Noninski, Fusion Technology, vol. 23, pages 474-476 (1993).; "Notes On Two Papers Claiming No Evidence For The Existence Of Excess Energy During The Electrolysis Of 0.1 M LiOD /D2O With Palladium Cathodes"]

If the Examiner wishes to continue to quote altered data [Albagli] but continues to fail to cite, or explain the basis for his systematically ignoring, Applicant's evidence which was timely and repeatedly submitted to the Office [and the Board, including in the Federal Appellate case, including regarding '457 in the Appendix therein at A203-204, A244,A278-A279, A353-355, A367-A370, A391, and especially A368], then Applicant requests and explanation for the violation of USC 1001 because the Office does once again make knowingly disingenuous false statements known to be false *a priori*. [Niehot'f v. Sahagian, 103 A.2d 211 (Me. 1954)]. This is a breach of duty [Rannard v. Lockheed Aircraft Corp., 26 Cal. 2d 149 (1945), 18 U.S.C. §1503]. The Office communication is thus in error [People v. Pierce, 66 Cal. 2d 53 (1967); U.S.v. Price, 86 S. Ct. 1152, 1157, footnote 7; Sawtelle v. Farrell, 70 F.3d 1381, 1387 (1st Cir. 1995); Leasco Data Processing Equip. Corp. v. Maxwell, 468 F.2d 1326 (2d Cir. 1972); Pizarro v. Hotels Concorde Int'l, C.A., 907 F.2d 1256 (1st Cir. 1990); Peckham v. Continental Casualty Ins. Co., 895 F.2d 830, 836 (1st Cir. 1990); Donatelli v. National Hockey League, 893 F.2d 459, 465 (1st Cir. 1990)].

Furthermore, some of the relied upon references cited by the Examiner are, or quote, "negative" results [eg. Browne, Lewis, Miskelly, Hilts - for example] which have been contested. Attention is drawn to the fact that most of the periodicals and newspapers cited by the examiner involve merely quoting the so-called "negative results" of others, either the Massachusetts Institute of Technology [MIT] (eg. Hilts) or Lewis et alia (Hilts, Browne). Given that the reference articles may be flawed, the additional tabloids referring to such obviously must be weighed accordingly, and are more than balanced by Bishop, Pollack, Schlesinger, Port, Chandler, and Freedman.

== ERROR REGARDING ZIEGLER, FALLER, SALAMON, AND COOKE

95. The Examiner's art cites Ziegler, Faller, Salamon, and Cooke who purportedly report negative results, while looking for neutrons. However, attention is directed to the fact that Faller did report a tritium increase. Other actually "positive" evidence in the Examiner's art does support the existence of these reactions. From 1989, Shani monitored stimulated neutron radiation from deuterated materials after being neutron-irradiated. However, fusion of isotopic fuel in a material does not usually produce significant numbers of neutrons external to said material. Therefore these so-called putative "negative" results do not negate anything at all. In addition, not all of the art cited by the examiner was "negative" with respect to neutrons. Within the papers cited by the examiner, Shani did in fact monitor stimulated neutron radiation from deuterated materials after said deuterated materials were neutron-irradiated.

== ERROR REGARDING HARWELL

96. This Examiner cites the 1989 Harwell experiment. However, was there no evidence of any excess heat generated in any of the Harwell cells? Harwell had flawed analysis, and as the Examiner knows, but ignores and fails to comment upon, was shown by the U.S. Navy, upon close analysis, to have had positive results in Cell 3. Melich and Hansen (Melich 93) have reported that:

"In Harwell's D₂O Cell 3 there are more than ten time intervals where an unexplained power source or energy storage mechanism may be operating. *Harwell Cells 1,2,3 and 4 were wired in series to a constant current source. *** Throughout these anomalous increases in temperature in Cell 3, Cell 4 behaves "normally", i.e., it suffers no unexplained pulses of energy. Our initial estimate of the power associated with these anomalous temperature increases is 100-200 mW."**

{Melich, M.E., Hansen, W.N., "Some Lessons from 3 Years of Electrochemical Calorimetry", in ICCF-3 Frontiers of Cold Fusion", Academy Press (1993)]
Thus, Harwell's cell 3 supports the characterization of "positive results".

— ERROR REGARDING HUIZENGA

99. The Office relies upon citations of Huizenga, while ignoring that he is focused on sales of his old inaccurate book. First, the book has NOTHING to do with the present invention. Second, the book is not up-to-date with respect to cold fusion, nor is it accurate. Most importantly, this book focuses on a few mistakes of a few individuals from 1989, and does not reflect either the science or engineering of the field in general today, or the present invention specifically.

Third, Huizenga's book and its unsubstantiated and inaccurate statements and claims have been criticized by many including Mallove (94; see also his Declarations). Dr. Huizenga would pass off the entire field as "pathological science", but given that he fails to read the literature, or respond to the issues in his book, his entire premise must be examined. Dr. Eugene Mallove, historian and scientist, has made some compelling comments about this phrase used against those in the field of cold fusion

"Pathological science" became the common insult, as few noticed that pathological skepticism about a new phenomenon was the real problem. Contrary to the media's perception, cold fusion never died and was certainly never disproved; it simply went underground as groups of courageous scientists in over a dozen countries mounted a concerted effort to understand and reproduce the mysterious phenomenon. Thanks to their hard work, it has survived."

[Mallove, *"Cold Fusion"*, May 1994 issue, vol. 1, number 1]

Other discussion of the errors in Huizenga was made with solid substantive response [A206,A243,A275-276,A279,A294-295 in the Federal case and elsewhere] although it is systematically ignored by the Examiner to deprive the Applicant of his Constitutional and civil rights. Where is Huizenga's or the Office's response?

Fourth, attention is drawn to the simple fact that no "Epilogue" by one writer can refute the copious -- and growing -- data which exists for cold fusion. Many attendees at the ICCF-4 meeting in Maui (including the Applicant) watched the elderly tired Dr. Huizenga sleep on a couch in the hotel during said Conference; even as three (3) simultaneous meetings were going on at that time. Dr. Huizenga appeared tired and worn, woke up later, after missing scores of meetings, and reported that there was "nothing new". This is preposterous and inaccurate, but Dr. Huizenga is entitled to his inaccurate opinion and his sleep.

Fifth, Huizenga's book relies on theories against cold fusion because of the unusual (compared with hot fusion) branching ratio. Some of these "negative theoretical" citations by the examiner calculate, using what may be incorrect or false

assumptions and approximations, that fusion of isotopic fuel in a material, i.e. cold fusion, can not "work" (e.g. Ohashi, Cribier, Chapline). There exist other theoretical papers which may explain the observed cold fusion phenomena (e.g. Hagelstein 90, 91, 1993A, 94; Takahashi (91), Swartz 1992, 94A, 96B, 97A, 97B; McNally 89; Hora 93; Johnson 94; Mills 94; Mills 95; Li 95; Kim 90, 94A, 94B, 95, 96; Matsumoto 89; Chubb 90, 91, 94A, 94B; Szpak 91; Tajima (90); Schneider 89; Rice 90, Zhu 90, and Bush 91A). These theories involve loading, material destruction, and nuclear reactions including tunneling, screening, and many other issues. These papers reflect solid research and support the existence of the field but are ignored by the Office. The applicant respectfully asks the Board to reconsider, because in actual fact such calculations were historically presented "proving" that heavier-than-air ships (i.e. airplanes) "cannot fly". Such calculations only created a virtual "drag" to the innovation of ideas, and their development and implementation, involving said airships - which later evolved to include jet planes and spacecraft.

**"Professor Goddard ... does not know the relation of action to reaction
... he only seems to lack the knowledge ladled out daily in our high
schools"**

[New York Times, January 13, 1920]

== ERROR REGARDING REPRODUCIBILITY

98. The Office purports non-"reproducibility" of these phenomena, as a "reason" for rejection. However, there are several errors with this logic and new argument. First, the Examiner's and his cited art's arguments are clouded by the two different meanings of the word(s) "(not) reproducible". In the parlance of the Office, when referring to "cold fusion", the word(s) "(not) reproducible" are a euphemism for "wrong". When used more generally, however, these words can even apply to scientific (and medical) fields which actually do engender respect and/or validity, and where "reproducible" only refers to the number of samples in a cohort developing the desired effect. The restriction that the Office creates using the word "reproducible" in the present case would obviously create unreasonable hurdles for inventors in such fields as cancer treatment, meteorology, or the sciences of earthquakes, lightning, sunspots, or solar storms.

Second, despite the erroneous logic of the office, radiation therapy accounts for the cure of more than 60% of adults afflicted with solid tumors composed of malignant disease, and obtunds the pain in 80% (or more) of patients treated

palliatively, there is almost always a clinical effectiveness. Yet it is not possible to know in advance which patients are going to be cured nor is it necessarily reproducible in any single patient. Thus there is clinical proof and utility, despite the lack of reproducibility in any single individual or cohort of patients. Thus, the claim that "reproducibility" must necessarily be absolute for there to be "utility" is also simply not true. Would the Examiner withhold curative treatment of a patient --of their own family member-- because such therapy is not "reproducible"? In summary, if the Office throws out cold fusion patent applications because there is not 100% reproducibility for each experiment, then probably all of the pharmaceutical and biomedical device patents should, for similar reasons, be voided *nunc pro tunc*.

== ERROR REGARDING BOSCH, BALKE, ROGERS

99. The Office has cited Bosch et al, Balke et al, Fleming et al, Rogers. However, Bosch, who unseriously claims to be the "Bavarian Bubble Bottle Team"), purportedly attempted to repeat the initial F+P experiment. Because the sensitivity of their system is 300 milliwatts (page 165), it is unlikely they would have been able to detect the expected signal with their calorimetry which was circa 65 milliwatts excess heat. Bosch measured neutrons which are not produced (discussed elsewhere). The cited arts have loadings which are insufficient. The Bosch cathode had a loading of less than 0.67, and that did not include correction for other depositions of other materials into or upon the cathode (page 172). This loading is now known to be too low (Swartz 97A) The "negative" results may be, in part, due to inadequate loading (Swartz 07/339,976), and/or the failure to monitor said loading of isotopic fuel (Swartz, (07/371,937**), and/or to activate the loaded quantity of isotopic fuel in various ways (Swartz 07/339,976, Swartz 07/371,937** and Swartz 07/760,970**), and/or to drive at the right location (Swartz SN 08/406,457 [filed March 20, 1995]. As taught in Swartz 07/339,976, palladium must fill with, and thus physically absorb within it, enough deuterium to obtain the desired reactions.

The cited arts are not relevant. Balke teaches a less relevant gas system which loaded palladium and titanium. The other references use neutrons.

Rogers is a theoretical paper because some of the conclusions in Rogers are not inconsistent with cold fusion. For example, on page 484, Rogers discusses that gamma emission from the excited helium state is not allowed. This is generally correct except at very elevated temperatures (like hot fusion), and Swartz (97A) and Swartz 96B discusses how this actually enables the desired reactions.

== ERROR BY EXAMINER REGARDING FLEMMING

100. The Examiner has cited Fleming and other papers where the loading times are too short. For example, Fleming some were half a day, the longest was 5 days. Without the codepositional techniques taught in the original specification and claims of the above-entitled application, the times are weeks to achieve the desired reactions. Furthermore, the loadings were insufficient. Fleming only had a loading estimated at 0.75 (page 521). This loading is now known to be too low (Swartz 97A).

== ERROR REGARDING JONES

101. The Office has cited Jones and Dagani. The citation of Dr. Jones is not relevant and is immaterial. It is interesting to watch Jones take both sides (see Taubes), and also publish the "positive" results in this field (Jones 89, Jones 90, Menlove and Jones et alia in Menlove 90B). First, the Examiner should admit that Jones' positive work has been cited in issued US Patents including Czirr 5,231,290. Second, the Examiner must accept that Jones now does again report neutron emission from these systems, as was presented this year at the APS meeting and then reported on in the Cold Fusion Times (Winter 2003 issue). The fact remain that Jones' experiment work now supports cold fusion.

The Applicant has already submitted contradicting unrebutted evidence and discussed that evidence including the errors in Jones which was explained with solid substantive response [A205,A251-A252,A291-292,A322; also A65,A70] including Jones' significant errors (Miles 93A, Miles 94A, 96A, Cravens 96, Tinsley 97). Dr. Miles, as just one example, discusses in great and sufficient detail said errors contained in the Jones papers in his 20 May 1998 to Mr. Dagani, Senior Editor, Chemical and Engineering News.

"Enclosed is a reprint of my recently published reply to Jones-Hansen [*J. Phys. Chem. B.* 102, 3642 (1998)]. It was a long and difficult battle for me to have the opportunity to reply to the vicious attack of my work by the Jones-Hansen paper [*J. Phys. Chem.*, 99, 6966 (1995)]. In my opinion, their paper contained many distortions and errors concerning my publications rather than the reasonable scientific dialogue that is so badly needed for this field.. ... Although critics like S.E. Jones and others have made it nearly impossible to obtain government funding for cold fusion, this research continues in many laboratories around the world. Unlike Jones and his 1989 report of cold fusion neutrons, I find no reason to retract any of my cold fusion claims. The recombination of deuterium and oxygen gases does not explain my excess heat measurements, and

atmospheric contaminations do not explain my correlations between the excess power measured and the helium-4 produced in the experiments."

[Dr. Melvin H. Miles NAWCWPNS Fellow, DEPARTMENT OF THE NAVY
NAVAL AIR WARFARE CENTER WEAPONS DIVISION]

In addition, it is important to note that in addition to said errors, Jones has other significant errors as well which are not discussed in these cited references. For example, in Jones (95), the discussions of heat rate, thermoneutral potential, and input power are incorrect, and furthermore are not applicable to the present application and invention, as discussed in Swartz (96E) and Swartz (95, 97B).

== ERRORS BY EXAMINER REGARDING JAPAN

102. The Examiner has cited other countries such as Japan. In fact, Japan pursued cold fusion before World War II (*Cold Fusion Times*, enclosed herein), and its efforts continue (*supra*). First, Japan is made of many individuals and institutions, many of which continue cold fusion studies, and who disagree with the hearsay Office claim, as they diligently continue to publish, including [and each of which prove the Examiner and his cited art incorrect]: Arapi, Alban, Faculty of Engineering, Iwate University, Japan, Experimental Observation of New Element Production in the Deuteride and/or Hydride Palladium Electrodes Exposed to the Low Energy DC Glow-Discharge, *Cold Fusion Times*, Volume 10, Number 1, 2003; Arata, Achievement of Solid-State Plasma Fusion, *Cold Fusion Times* Fall 1997; Asami, T. Senjuh, T. Uehara, M. Sumi, H. Kamimura, S. Miyashita and K. Matsui R&D Center for New Hydrogen Energy, The Institute of Applied Energy 14-2, Nishishinbashi 1-chome, Minato-ku, Tokyo 105, Japan, Material Behavior Of Highly Deuterated Palladium, The Seventh International Conference On Cold Fusion: 1998; Iwamura, Yasuhiro, Takehiko Itoh, Mitsuru Sakano and Satoshi Sakai, Observation Of Low Energy Nuclear Reactions Induced By D2 Gas Permeation Through Pd Complexes, The Ninth International Conference on Cold Fusion. 2002. Beijing, China: Tsinghua University.; Iwamura, Yasuhiro, Mitsuru Sakano And Takehiko Itoh, Advanced Technology Research Center, Mitsubishi Heavy Industries Ltd., 1-8-1, Sachiura, Kanazawa-ku, Yokohama 236-8515, Japan, Elemental Analysis of Pd Complexes: Effects of D2 Gas, *Jpn. J. Appl. Phys.* Vol. 41 (2002) pp. 4642–4650, Part 1, No. 7A, July 2002; Iwamura, Takehiko Itoh, Nobuaki Gotoh, Mitsuru Sakano, Ichiro Toyoda And Hiroshi Sakata, Detection Of Anomalous Elements, X-Ray And Excess Heat Induced By Continuous Diffusion Of Deuterium Through Multi-Layer Cathode (Pd/CaO/Pd), The Seventh International Conference on Cold Fusion. 1998. Vancouver, Canada.; ENECO, Inc., Salt Lake City, UT. : p. 167, J. Kasagi, H. Yuki, T. Itoh, N. Kasajima, T. Ohtsuki and A. G. Lipson, Anomalously Enhanced

D(d,p)T Reaction In Pd And PdO Observed At Very Low Bombarding Energies, Seventh International Conference On Cold Fusion. 1998. Vancouver, Canada; Eneco, Inc., Salt Lake City, Matsumoto, Taka-Aki, Hokkaido Univ, Japan, Generating Carbon Tubes And Films From Lead And Cadmium Wires During Underwater Spark Discharges, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000), Mizuno, Tadahiko, Tadayoshi Ohmori 1 , Kazuhisa Azumi, Tadashi Akimoto And Akito Takahashi, Confirmation Of Heat Generation And Anomalous Element Caused; Mizuno, Tadahiko Tadayoshi Ohmori, Tadashi Akimoto, Hokkaido Univ, Japan, , Akito Takahashi, Osaka Univ, Japan, Neutronics, Heat and Products Induced by Plasma Electrolysis, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000), Mizuno, Tadahiko, Experimental Confirmation of the Nuclear Reaction at Low Energy Caused by Electrolysis in the Electrolyte, Proceedings for the Symposium on Advanced Research in Energy Technology 2000, Hokkaido University, March 15, 16 and 17, -2000, pp. 95-106., Mizuno, Anomalous Isotopic Distribution after electrolysis, Cold Fusion Times Fall 1996, Mizuno, Tadahiko, Nuclear Transmutation: The Reality of Cold Fusion, Department of Nuclear Engineering Hokkaido National University, Japan, Mizuno, Tadahiko, Tadayoshi Ohmori, Tadashi Akimoto and Akito Takahashi, Production of Heat during Plasma Electrolysis in Liquid, Jpn. J. Appl. Phys. Vol.39 (2000), Mizuno, Tadashi Akimoto, Tadayoshi Ohmori 1 , Akito Takahashi, Relation Between Neutron Evolution And Deuterium Permeation With A Palladium Electrode, The Ninth International Conference on Cold Fusion. 2002. Beijing, China: Tsinghua University., Takahashi, Akito Masayuki Ohta, Osaka Univ, Japan, , Tadahiko Mizuno, Hokkaido Univ, Japan, Radiation-Less Fission Products by Selective Channel Low-Energy Photofission, Trans. American Nuclear Society, Low-Energy Nuclear Reactions (2000).

Second, the Examiner's inaccurate statement is indelibly rebutted by said Japanese efforts including Mitsubishi's recent paper on cold fusion in China at the 9th International Cold Fusion meeting on 4/02 (*supra*).

Third, groups in Japan are simply not relevant to the present application.

Fourth, if the cited groups had followed the present original specification they would have succeeded.

The Examiner, trying to undermine US security and the US Constitution is directed to additional CF confirmations which have been made by the Japanese [Mizuno (December 1993); Yamaguchi 90].

"The cold fusion phenomena were tested with use of proton conductor solid electrolyte plates maintained at 300~400 deg C. An anomalous level of excess heat evolution of the order of 100 watt cm⁻² was observed during absorption/desorption cycles of deuterium-containing hydrogen gas under application of an alternate electric field. **** Samples were made from a mixture of SrCO₃, CeO₂, Y₂O₃ and Nb₂O₃ powders. **** The heat generation from the proton conductor in the experiment of deuterium-containing hydrogen gas was estimated to be approximately 50 watt (~100 watt cm⁻²) over 20 hrs, or ~3.6 MJ in total. The input power given to the sample was +18 V, +/- 40 (micro) A, or 7.2 x 10⁻⁴ watt. Accordingly, the output-to-input power ratio was estimated to be as large as 7 x 10⁴."

["Anomalous Heat Evolution from SrCeO₃-Type Proton Conductors during Absorption/Desorption of Deuterium in Alternate Electric Field"; Tadahiko Mizuno, Michio Enyo, Tadashi Akimoto and Kazuhisa Azumi Hokkaido Univ., Sapporo, Japan (ICCF-4, December 1993)]

Despite the incorrect statements by the Examiner, similar confirmations of cold fusion and continued efforts have been made by the Chinese [Jin (December 1993); Li (95, 96A, 96B, 97), Jin (93, 94)].

"The experimental studies of YBCO-D system indicated that YBCO high temperature super-conductor (HTSC) was shown to have a similar effect on deuterium absorbability and anomalous nuclear effect like palladium(1). We found that Y₁Ba₂Cu₃O_{7-d} could absorb deuterium at normal temperature and forms D_xY₁Ba₂Cu₃O_{7-d}. We also found that the deuterated YBCO could produce high energy charged particles far larger than background. The influence of the absorbed deuterium on the characteristic of YBCO HTSC and the mechanism of the anomalous nuclear effect are not clear and needed to be further studied."

["Deuterium Absorbability And Anomalous Nuclear Effect Of YBCO High Temperature Super-Conductor"; Jin Shang-Xian, Zhan Fu-Xiang And Liu Yu-Zhen, En Beijing, PRC (ICCF-4, December 1993)]

Also inconsistent with the Office's opinion and attempt to hurt the United States and its citizens, are Russia's reports also confirming cold fusion. For example,

Kucherov (1993) has confirmed the cold fusion phenomena in the gas glow discharge system.

"The results of four years of experimental work on glow discharge in deuterium with cathodes made of palladium and other materials are presented. About 500 experiments were made. ****. Neutron spectra showed neutron energies up to 17MeV with anomalous shift to high energies (five orders) relative to d-d reaction. .. Gamma-spectrometry showed low level radioactive isotopes formation. Together with half - life time measurements it allowed to identify some of the isotopes, such as Rh and Sr isotopes. Most of the lines (~100) are still unidentified. Non-background gamma-lines sometimes can be seen for few days. Most of the gamma-lines appear in lower than 300KeV region. X-ray films outside the chamber with led screens show some beam-like spots with energy 100-200 KeV. Charged particles registration with SSB and CR-39 detectors showed good correlation of the results obtained by these methods. Maximal observed fluxes of charged particles were ~ 10^6 S-1. ***** X-ray film with lead screens showed X-ray fluxes up to 10gs.] with soft (<1KeV) and hard (10-30KeV) components. Sometimes characteristic X-rays of palladium can be seen with Ge-Li detector."

["Calorimetric and Nuclear Products Measurements at Glow Discharge in Deuterium"; Yan Kucherov, Alexander Karabut, Irina Savvatimova Scientific industrial Association "Luch", Podolsk, Moscow Region, Russian Federation (1993)]

Thus, there is growing evidence that the Office's opinion that cold fusion "does not exist" is incorrect, but is only made to usurp the United States Constitution, Congressional directive, law, custom, and Applicant's rights. Said evidence includes reports of the progress of cold fusion reveal a real scientific field in Japan, India, Russia, England and France ["Cold Fusion in Japan", Rothwell, *Cold Fusion Times*, v. 1, issue 3, page 1, 7, 9, (1993) and "Cold Fusion Impact - Global Response:", Fox, *Cold Fusion Times*, vol. 1, issue 2, p. 2, 5 (1993), Mallove, "Cold Fusion", May 1994 issue, vol 1 number 1]. The Examiner should consider "Why there?" The answer is this. Research has flourished mainly in those countries (Lonchampt 96) where patents issue.

As stated in the unrebutted Declaration of Mr. Fox,

"Few other countries have denied cold fusion inventors the rights to the fruits of their ingenuity. The most telling evidence is the fact that scores of patents on cold fusion have issued in other countries (over one-third of all

patents issued have been to Japanese inventors and assignees). By contrast almost no patents on cold nuclear fusion have been granted by the U.S. Patent Office"

[Declaration of Hal Fox]

Therefore, the Applicant respectfully requests that the Examiner respond substantively and honestly to Applicant's submitted evidence about Japan, and then finally, tardively, admit the Office's lack of accuracy. Work on cold fusion began in Japan before World War II and continues to this day. The US is now 14 years behind other countries because of the US Patent Office denies allowing valid patents to issue, thereby systematically ignoring both Constitutional and Congressional directive.

== ERROR REGARDING MERRIMAN

103. In the past, the Examiner has relied upon Merriman. Dr. Merriman has made several comments about Dr. Swartz. One of those comments is in the last page of the Examiner's cited art. The Examiner cites a paper by Dr. Barry Merriman, entitled "An Attempted Replication of the CETI Cold Fusion Experiment". In the paper, Merriman attempts to reproduce an experiment of someone other than the Applicant, and of a system other than the present application or any of the other applications of the Applicant. Therefore, Merriman is not relevant. Most importantly, it is presumed that the reason that the Office cited this paper is because Dr. Merriman cites the Applicant, Dr. Swartz, on page 17, of 17. On that page, although Dr. Merriman is critical of many people in their efforts stating that they are "neutral -- to wildly optimistic", but of the Applicant of the above-entitled invention, Dr. Merriman states,

"Dr. Mitchell Swartz is cold fusion times is unabashedly pro -- CF, but serious, scientifically oriented online magazine."

With that complement by the offices witness supplementing the unrebutted Declarations and the copious unrebutted peer-reviewed publications and other Exhibits, the Applicant now hopes the Examiner will reconsider and issue this patent.

== ERROR REGARDING MILLER

104. In the past, the Examiner has relied upon an inaccurate memo of a putative Bennett Miller. There are several problems with this citation and any reliance upon it. First, Miller does not discuss this invention or ANY of Applicant's work (published and/or unpublished). It is therefore not relevant. Miller is

admittedly inconclusive. Miller states that "it can be argued that the tests were inconclusive for a number of reasons".

Second, Miller is technically inaccurate about cold fusion situation in Japan. Miller confuses the Toyoda/IMRA effort (with F+P in Sophia Antipolis) with the IAE-NHE Laboratory (Shin Sapporo) which was under the aegis of MITI/NEDO and was officially "closed" after 3.5 years of an intended 3 year effort.

In fact, Japan pursued cold fusion before World War II (*Cold Fusion Times*, enclosed herein), and its efforts continue (*supra*).

Third, Miller suggests the use of peer-review. As discussed in the Verner Declaration, the Applicant has done just that,

"I have witnessed Dr. Swartz operate his equipment in front of visitors to the laboratory including Professors Louis Smullin and Keith Johnson from MIT and others."

Applicant has submitted more than 40 peer-reviewed papers and that is abiding by the process, as the Examiner surely would agree. What could be more compliant with Miller's suggestions than that?

Fourth, discussion of errors in Miller, was previously made with solid substantive response [e.g. in the Federal Appendix A316-317, A321]. Where is the Examiner's response?

Fifth, it appears that Miller was also against solar-cell technology in the '70s and therefore has a history of opposing alternative energy sources (like solar cells), and his opinion must be further discounted accordingly.

Sixth, the Applicant includes a letter which he wrote to Dr. Miller about his cited, inaccurate, report. Dr. Miller never responded to that to this date.

== ERROR REGARDING SILVERIA AND MYERS

105. The Office has relied on references that involve Silvera and Myers. However, they did not achieve their loading by the method described in the present original specification, and therefore does not apply. Specifically, Silvera (90) used a diamond anvil to attempt to load palladium with deuterons. Although high pressure was obtained, the reaction was monitored by neutron detectors, and neutrons are not the proper signal for these types of reactions, even if they were achieved by the quite different system of Silvera (90). Also, Silvera may have seen a slight increase, as it is difficult to state since there were insufficient initial background levels reported (Fig 3, page 9145, Silvera (90)). Furthermore, the papers states: "The neutron detector had deviations of 0.3 counts/h from the average of 2.1 counts/h.,

which we did not consider to be significant (bottom column 1, page 9145, Silvera (90)).

Myers et alia (90) used a 10,000 volt ion implantation cryogenic (41 to 81 degrees Kelvin) technique to load palladium with deuterons. Although high pressure was obtained, these were quite inhomogeneous (see figure 5, page 266, Myers (90)). The reaction was monitored for 15 hours by charged particle detectors. Such detectors may not be the proper signal for these types of reactions (Mallove, also vide supra), even if they were achieved by the quite different system of Myers (90). Also, Myers did see a very slight output consistent with some possible fusion reaction (see figure 1, page 264, Myers (90)) which created 300 counts per channel of tritons. Furthermore, Myers only did this for 15 hours, which is too short (confer Swartz 97E).

Silveria and Myers demonstrates the field is real, and that many would have benefited by the granting of the patent described in the original specification and claims of the above-entitled application.

== ERROR REGARDING TAUBES

106. The Office has relied on references that involve Taubes. Any reference to Taubes is both wrong, irrelevant, immaterial, and egregious. Taubes focuses on a few mistakes of a few individuals from 1989, and does not reflect either the science or engineering of the field in general today, or the present invention in specific. Taubes (like Huizenga) is a career- "negativist" to this field who makes a living off of his book. However, Taubes is a science reporter and not a scientist. Nor has he been sworn in or proven by the Office to be an expert in these matters as the Applicant has done with the Declarants to date. Furthermore, Taubes apparently fabricated an alleged tampering for his own profit. The alleged tampering did not take place. The dynamics of the tritium which did appear, could probably not have been "spiked" as discussed in Mr. Taubes' unsubstantiated allegations crafted as innuendo to which the Office refers. As importantly, the generation of detected tritium has actually been confirmed elsewhere including several US national laboratories. Second, the Office's reliance on such a purported dubious incident has **NOTHING TO DO WITH** the original specification of the above-entitled application. Third, Taubes' book has many frankly silly and stupid errors including claims that researchers in this field do not measure electric current, or baseline levels. The Figures in the original specification of the above-entitled application and the other of the Applicant's inventions and peer-reviewed publications show that this

This is not true for the present invention. Taubes' book has been severely -- and correctly -- criticized by Miles (92A), also Miles (92B), and Hoffman (94). Also see Mallove.

LAW

107. Ignored in the Examiner's Communication are the following standards of review which have been cited by the Applicant. The Applicant explicitly requests answers with specificity regarding each of the Office's systematic deviations.

The present invention is a method to reveal information about the loading, *in situ*, and non-invasively using a vibrating electrode, composed of a metal such as palladium which has internal filling ("loading") with hydrogen, which is monitored for its natural frequency, as was presented in the original specification and claims.

The Examiner ignores In re Hogan [559 F.2d 595, 60S, 194 USPQ 527, 537 (CCPA 1977)] which discusses that enablement must be judged on the original specification and claims, but in the Office Communication it was not.

The Examiner ignores In re Fouche [439 F.2d 1237, 1243, 169 USPQ 429, 434, (CCPA 1971) and In re Zletz [893 F.2d 319, 13 USPQ2d 1320 (Fed. Cir. 1989)] which state that an invention (in structure, operation and composition) is defined by the claims and the original specification.

The Examiner ignores In re Morris which requires that the Examiner must respond to what Applicant meant, but he did not.

The Examiner ignores In re Prater, 415 F.2d 1393, 162 USPQ 541 (CCPA 1969)] which requires the Examiner to refer to the claimed invention as the focus of its Office communication, but it did not when drifting toward criticism of "FP".

The Examiner ignores Rule 132 which requires Applicant's solid, substantial, and timely, evidence submitted against the Examiner's rejections be considered because "(p)atentability is determined on the totality of the record, by a preponderance of the evidence with due consideration to persuasiveness of argument." [Id. at 1445, 24 USPQ2d at 1444]. Applicant has published his inventions, proving that this invention was correctly taught in the original specification and claims, on the filing date of the application.

The Examiner ignores In re Gazave, 54 CCPA 1524, 379 F.2d 973, 154 USPQ 92 (1967) and In re Chilowsky [43 CCPA 775, 229 F.2d 457, 108 USPQ 321 (1956)] which require consideration of the material which Applicant supplied and cited - and now has supplied again.

The Examiner ignores *In re Oetiker*, 977 F.2d at 1445, 24 USPQ2d at 1444 which requires the Examiner to substantively respond with a *prima facie* case of unpatentability. However, after the submission of Swartz, M., "Possible Deuterium Production From Light water excess enthalpy experiments using Nickel Cathodes", *Journal of New Energy*, 3, 68-80 (1996) and Swartz, 1998, Improved Electrolytic Reactor Performance Using π -Notch System Operation and Gold Anodes, Transactions of the American Nuclear Association, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85 and Swartz(97), other peer-review papers, and the Declarations, the burden shifts back to the Office and can only be discharged by the Examiner "presenting evidence or reasons why persons skilled-in-the-art would not recognize in the disclosure a description of the invention defined by the claims" [Wertheim, 541 F.2d at 263, 191 USPQ at 97]. Applicant asks that this be done with specificity, substantivity, and with explicit reference, and in detail with full findings of fact.

The Examiner ignores *In re Brana* and *In re Eltgroth*, 419 F.2d 918, 164 USPQ 221 (CCPA 1970) which demand that the Examiner must establish a reason to doubt an invention's asserted utility, and the method to reveal information about the loading, *in situ*, and non-invasively using a vibrating electrode, composed of a metal such as palladium which has internal filling ("loading") with hydrogen, which is monitored for its natural frequency, as was presented in the original specification and claims has great utility. It is not 'incredible' or 'unbelievable' like the Examiner appears to purport. This invention is quite believable.

108. In summary, Examiner must consider the submitted evidence including:

#1) Declarations from scientists of ordinary skill-in-the-art, who considered the specification and stated that the written description was sufficient.

#2) The published peer-reviewed scientific articles [including m Swartz, M., "Possible Deuterium Production From Light water excess enthalpy experiments using Nickel Cathodes", *Journal of New Energy*, 3, 68-80 (1996) and Swartz, 1998, Improved Electrolytic Reactor Performance Using π -Notch System Operation and Gold Anodes, Transactions of the American Nuclear Association, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85 and Swartz(92, 94A, 97A, 97C)].

The Examiner ignores *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) which indicates that #1 or #2 are sufficient to demonstrate that the specification provides an adequately written description of the subject matter,

including how to operate the invention, and claimed the invention so that an artisan, or those skilled-in-the-art, could practice it without undue experimentation. Either #1 or #2 prove that enablement, utility, and validation. Together, #1 and #2 have been submitted and Applicant submits that these together corroborate enablement of the present invention both *de facto* and *de jure*.

109. The Examiner has failed to comment on the fact that energy is a Major Financial Sector of the US economy, and even more important during War. The Examiner cannot honestly admit there is no utility for an invention measuring energy-production and efficiency.

The Examiner ignores *In re Vaeck* [947 F.2d 488, 495-96, 10 USPQ2d 1438, 1444 (Fed. Cir. 1991)] which states that an enablement rejection under section 112, ¶1 is only appropriate where the written description fails to teach those skilled-in-the-art, like the Declarants, to make and use the invention.

The Examiner has ignored controlling authorities including Clause 8 of Section 8, Article I, by improperly eliminating an entire field involving energy and United States security.

The Examiner has ignored controlling authorities including Article VI, by interfering laws passed by Congress [*DIAMOND v. CHAKRABARTY*; 447 U.S. 303, 309] including that patentable statutory subject matter spans "anything under the sun that is made by man" [S. Rep. No. 1979, 82d Cong., 2d Sess., 5 (1952); H. R. Rep. No. 1923, 82d Cong., 2d Sess., 6 (1952)].

The Examiner has ignored controlling authorities including Article I, Section 2, by ignoring that Applicant is entitled to the privileges and immunities of citizens in the other states. Specifically, the Examiner ignores that the Office, Europe and Japan have allowed selected other patents in the very same field not allowed here [Czirr(5,231,290), Westphal(5,215,631), Ahern(5,411,654), Patterson(5,036,031), (5,318,675), (5,372,688), (5,036,031); Aspden, UK-GB 2,231,195B]. This is a dual-tiered system which the Office has set up to usurp constitution rights of the Applicant and American citizens.

110. The Examiner continues to have two different standards of review. Therefore, the Examiner has ignored controlling authorities including the reasoning of the Supreme Court in *United States v. Nixon* (1974) that all are "equal under the

law". Hence, the Examiner has ignored controlling authorities including the 14th Amendment, requiring an impartial tribunal [28 U.S. Code Section 144, Mayberry v. Penna., 91 S.8.; Bloom v. Illinois, 88 Ct. 499 S.Ct. 1477; Duncan v. Louisiana, 88 S.Ct.1444] and equal protection. In the light of the previously unrebutted Declarations [hereby again submitted] there appear to be violations of the 14th Amendment's "equal protection" clause [Frontiero v. Richardson, 93 S.Ct. 1736; 411 U.S. 677; Weiss v. Weiss, 436 N.Y.S. 2d. 862, 52 N.Y. 2d. 170 (1981)] with serious implications [Gass v. Lopez, 95 S. Ct 729; Wood v. Strickland, 95 S Ct 9S2: U.S. v. Price, 86 S Ct 1152, 1157, Footnote 7; Griffin v. Breckenridge, 91 S Ct 179D; Gamez v. Toledo, 42 U.S.C. §1983, and Bivens v. Six Unknown Named Agents of Fed. Bureau of Narcotics].

SUMMARY RE: 35 USC 112

111. In summary, and in conclusion, the Applicant taught the subject matter defined by each of the rejected Claims including how his apparatus and method works, set forth the best mode contemplated, distinctly pointed out and claimed the subject matter which constitutes the invention, wrote an adequate enabling disclosure, and thus complied and conformed with 35U.S.C. §112, first paragraph, of the Patent Act.

Furthermore, a method to reveal information about the loading, *in situ*, and non-invasively using a vibrating electrode, composed of a metal such as palladium which has internal filling ("loading") with hydrogen, which is monitored for its natural frequency, as was presented in the original specification and claims so that an artisan, or those skilled in the art, could practice it without undue experimentation [*In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988), citing with approval *Ex parte Forman*, 230 USPQ 546, 547 (Bd. Pat. App. & Int. 1986)]. Applicant has now demonstrated that his invention as claimed was, and is, adequately described to one skilled-in-the-art. Said Declarations are sufficient in their factual content with respect to the significant evidence, and prove that the Examiner is in clear error. By submitting said peer-reviewed publications, showing the Applicant is correct, and said Declarations containing relevant facts by probative witnesses, the Applicant has now undertaken the full burden coming forward with his evidence as required [*In re Oetiker*, 977 F.2d at 1445, 24 USPQ2d at 1444].

The Examiner's communication contains copious material misstatements, including those corrected by the Office's own witnesses.

The Examiner's communication ignores the standards of review and the Office's own rules.

The Examiner's communication handwaving to cold fusion, as not existing ignores the invention as it was actually taught, and is therefore cut of a cloth other than this invention which demonstrates that the Office's notions are quite weak, heralding the need for allowance of the present invention.

The Examiner should closely consider the *de facto* evidence and accept the testimony of the Declarants, skilled-in-the-art, who dispute the Examiner and attest to conformation with 35U.S.C. §101.

The Examiner should closely consider the *de jure* evidence including M Swartz, M., "Possible Deuterium Production From Light water excess enthalpy experiments using Nickel Cathodes", *Journal of New Energy*, 3, 68-80 (1996) and Swartz, 1998, Improved Electrolytic Reactor Performance Using π -Notch System Operation and Gold Anodes, Transactions of the American Nuclear Association, Nashville, Tenn 1998 Meeting, (ISSN:0003-018X publisher LaGrange, Ill) 78, 84-85 and Swartz(97) and the other relevant peer-reviewed publications which demonstrate enablement at the time of the initial filing because validation only comes through peer-review.

In accordance with the foregoing arguments that Applicant has conformed with the requirements of sections 112 of the Patent Act, and reversal of the rejection of the Claims 1-20, and allowance of Claims 1-20 is respectfully requested, as required by the statute (35 USC 112).

DISCUSSION OF 35 USC 101 REJECTION

112. Claims 1-20 are rejected under 35 U.S.C. 101 because the claimed invention as disclosed, in the erroneous opinion of the Office, is inoperative and therefore lacks utility. Applicant disputes this for the reasons below which are supported by facts and Declarants and peer-reviewed published papers. If these are not sufficient, then Applicant asks what will be sufficient for the Examiner and Office, whose goal remains unclear as of the date of this response.

The Office states in sections 3 and 8,

"5. Claims 1-20 are rejected under 35 U.S.C.101 because the claimed invention as disclosed is inoperative and therefore lacks utility. The reasons that the indentions as disclosed is inoperative are the same as the . . . reasons set forth in section 3 above and the reasons set forth in section 3 above are accordingly incorporated herein. There is no reputable evidence of record to indicate the invention has been reduced to the point of providing in current available form, an operative cold fusion system."

THE TRUTH - THOSE SKILLED-IN-THE-ART SAY THERE IS UTILITY

First, the Examiner is incorrect. Section 3 involves operability and not utility.

Second, proof of utility should be judged either by those using the invention or those skilled in the art. Therefore, the Examiner must consider those skilled-in-the-art who oppose and counter the rejection under 35U.S.C.§101.

Third, the Examiner points to out art not involving this Application. However, validation occurs when scientists actually skilled, and working, in the state-of-the-art state it to be so. These are scientists who research and actually write the current scientific technical papers which undergo peer-review, file patent applications, and attend international conferences (which have gone on for thirteen years). They absolutely disagree with the Examiner on this.

Fourth, and most importantly, there is reputable evidence of record to indicate the invention has been reduced to the point of providing an operative cold fusion system.

Fifth, the Claims clearly define subject matter of considerable utility because energy needs dominate, and are critical to the economy.

APPLICANT HAS PUBLICALLY DEMONSTRATED HIS INVENTIONS

113. The Applicant's system was demonstrated openly to the public at the Massachusetts Institute of Technology. It has been reported on in America, Europe Japan, and Asia. They came. The Patent Office's counsel was invited to attend the meeting and demonstration, but he did not show up.

For example, about the Applicant and his invention(s).

"Here are some of the high points to be taken from ICCF10:

"Dr. Mitchell Swartz's Fleischmann/Pons-type electrolytic palladium Phusor/low electrolyte conductance heavy water/platinum cell performed flawlessly in Prof. Hagelstein's lab at MIT during ICCF10. Its excess power ranged from 167% to 267% as Dr. Swartz altered the experimental conditions. This excess heat, as measured by his precision calorimeter, persisted from Sunday August 24 to August 30, longer than ICCF10 itself. The excess heat was interrupted on the last day only to bring the equipment back to Wellesley, MA otherwise it would have continued much longer."

[Dr. Eugene Mallove, editorial,
Infinite Energy Magazine No.51, 9/2003]

As another example:

"Greetings. I am back from ICCF-10 but I have a rotten cold, so I am a decongestant daze. I can't even write. I write mainly by dictating to Naturally Speaking voice input, but the computer does not understand me when my nose is stuffed up.

"Swartz, and Dash et al., live demonstrations at MIT. Marvelous work! Bravo to everyone! McKubre said he would never have the guts to try this, because so much can go wrong when you move an experiment."

[Jed Rothwell, Subject: Impressions of ICCF-10, 3 Sep 2003]

As another example:

"Demonstrations - Three excess heat experiments were shown in live demonstrations at ICCF10, including two on August 26, in a laboratory at MIT that was open to the public: A cell in a precision calorimeter was shown by Mitchell Swartz and Gayle Verner at MIT."

[<http://lenr-canr.org/iccf10/iccf10.htm>]

And yet as another example:

"La dixième conférence internationale sur la fusion froide ICCF10 s'est tenue à Boston aux Etats-Unis, du 24 au 29 août 2003. 120 personnes de 15 nationalités différentes y ont participé. Elle était organisée par le Professeur Peter Hagelstein, du MIT. Ce fut l'occasion de prendre connaissance des derniers développements sur le sujet. Depuis 10 ans que je travaille sur ce thème, et ayant participé à ma septième conférence, j'ai été très impressionné par la qualité du travail présenté, tant du point de vue expérimental que théorique. Elle s'est encore améliorée par rapport à ce qui avait été présenté l'an dernier à Pékin.

"Deux démonstrations de fusion froide ont été présentées : l'une par le professeur John Dash de l'université de l'Oregon à Portland, et l'autre par le Dr Mitchell Swartz. Les deux expériences ont démontré la production d'excès de chaleur.

"... M. Swartz a obtenu de forts excès de chaleur, jusqu'à 300% avec de l'eau lourde ultra pure de résistivité 220 k?, sans rajout d'électrolyte, avec cathode de palladium hélicoïdale. Des cycles de chargement et de déchargement accroissent l'excès de chaleur. Une remarque importante, est la forte tension mesurée en circuit ouvert : 2.5 Volts."

[*Rapport sur L'International Conference on Cold Fusion ICCF10,*
http://users.skynet.be/kurtgode/iccf_10_biberian.htm]

DECLARATIONS AND OTHER TESTIMONY SUPPORT UTILITY

114. Utility is a fact question, and proof of utility is sufficient if it meets at least one stated objective. In this case, it does. The Examiner has not followed the Office's own standards of review. The Office's rule [M.P.E.P. §2111.01] requires that

"the words of a claim ... must be read as they would be interpreted by those of ordinary skill in the art".

Therefore, the Examiner is incorrect and absolutely and substantively contradicted by any of the Declarations of either Drs. Chubb, Fox, Mallove, McKubre, or by several of the Office's own previous witnesses, Dr. Rehn or Dr. Will.

At the seventh international meeting in this field (ICCF-7, Vancouver). Dr. McKubre stated:

"For me, the best heat report, and perhaps the best report at this conference, was that of Mitch Swartz. ... I have not been able to perform the experiments myself, successfully, and I have always felt that the quality of the calorimetric observations in the nickel light water studies has been less than the quality of the calorimetric observations in the palladium-deuterium system. ... Mitch Swartz presented a very clear piece of calorimetric evidence which is certainly going to cause me to reconsider my belief and understanding of the nickel-light water system and its capacity to produce anomalous heat"

[Dr. Michael McKubre, SRI, Infinite Energy, 4, 20 , pp.34-35, (1998)]

When Dr. Michael Schaffer (A55, 8/7/01) was misquoted by the Office on another of Applicant's inventions, Dr. Schaffer corrected the Office and said,

5 "I do not see how anyone could construe anything that I wrote at Scientific American's site to imply that there is "no utility" in cold fusion, much less in instruments that might be used in cold fusion and other scientific experiments. ... As an expert ... I would agree [Dr. Swartz's invention] ... does have utility".

Dr. Rehn, U.S. Navy, said

"Perhaps the clearest scientific fact, at this time, is the hardest for physicists to accept: nuclear reactions apparently do occur in deuterium-loaded Pd, Ti, and probably in other solids." [Office of Naval Research Asian Office, NAVSO P-3580, Vol. 18, Jan. 1993]. This confirms that Dr. Will said, "Significant positive results have been obtained (by) 100 groups from more than 12 countries"

[Final Report NCFI (1991)].

LAW

115. Utility is a fact question, and proof of utility is sufficient if it is convincing to one of ordinary skill in the art or if it meets at least one stated objective.

"Utility is a fact question, see e.g., Wilden Pump v. Pressed & Welded Products Co, 655 F.2d 984, 988, 213 USPQ 282, 285 (9th Cir. 1981); Nickola v. Peterson, 580 F.2d 898, 911, 198 USPQ 385, 399 (6th Cir. 1978), cert. denied, 440 U.S. 961, 99 S.Ct. 1504, 59 L.Ed.2d 774 (1979)." ***

"When a properly claimed invention meets at least one stated objective, utility under 101 is clearly shown. See e.g., Standard Oil Co. (Indiana) v. Montedison, S.P.A., 664 F.2d 356, 375, 212 USPQ 327, 344 (3rd Cir. 1981), cert. denied, 456 U.S. 915, 102 S.Ct. 1769, 72 L.Ed.2d 174 (1982); E.I. du Pont de Nemours & Co. v. Berkley & Co., 620 F.2d 1247, 1258 n. 10, 1260 n. 17, 205 USPQ 1, 8 n. 10, 10 n. 17 (8th Cir.1980); Krantz and Croix v. Olin, 148 USPQ 659, 661-62 (CCPA 1966); Chisum on Patents, 4.04[4] [1983]."

[RAYTHEON COMPANY v. ROPER CORPORATION, U.S.C.A., Federal Circuit, 1983, 724 F.2d 951, 220 USPQ 592]]

"Proof of utility is sufficient if it is convincing to one of ordinary skill in the art. In re Irons, 52 CCPA 938, 340 F.2d 974, 144 USPQ 351 (1965). The amount of evidence required depends on the facts of each individual case. In re Gazave, 54 CCPA 1524, 379 F.2d 973, 154 USPQ 92 (1967). The character and amount of evidence needed may vary, depending on whether the alleged utility appears to accord with or to contravene established scientific principles and beliefs. In re Chilowsky, 43 CCPA 775, 229 F.2d 457, 108 USPQ 321 (1956)."

[In Re JOLLES, U.S.C.P.A., 1980. 628 F.2d 1322, 206 USPQ 885]

The Declarations demonstrate that the original specification and claims clearly define subject matter of considerable utility. Therefore, the Applicant has fully conformed with, and satisfied, the requirements of §101 of the Patent Act and met at least one (1) stated objective [Standard Oil Co. (Indiana) v. Montedison, S.P.A., 664 F.2d 356, 375, 212 USPQ 327, 344 (3rd Cir. 1981), cert. denied, 456 U.S. 915, 102 S.Ct. 1769, 72 L.Ed.2d 174 (1982); E.I. du Pont de Nemours & Co. v. Berkley & Co., 620 F.2d 1247, 1258 n. 10, 1260 n. 17, 205 USPQ 1, 8 n. 10, 10 n. 17 (8th Cir. 1980); Krantz and Croix v. Olin, 148 USPQ 659, 661-62 (CCPA 1966); Chisum on Patents, 4.04[4] [1983]; RAYTHEON COMPANY v. ROPER CORPORATION, U.S.C.A., Federal Circuit, 1983, 724 F.2d 951, 220 USPQ 592].

The Examiner has rejected In re Zurko [142 F.3d 1447, 1449, 46 USPQ2d 1691, 1693 (Fed. Cir.), cert. granted, 119 S. Ct. 401 (1998)] which declares that utility is a fact question [RAYTHEON COMPANY v. ROPER CORPORATION, U.S.C.A., Federal Circuit, 1983, 724 F.2d 951, 220 USPQ 592], and one which the Examiner in this case must review for clear error [Cross v. Izuka, 753 F.2d 1040, 1044 n.7, 224 USPQ 739, 742 n.7 (Fed. Cir. 1985); also In re Zurko].

116. The Examiner has rejected the directive of 1.131 (a)(1) which requires that "When ... a patent ... is rejected on reference ... to a printed publication, the inventor of the subject matter of the rejected claim ... may submit an appropriate oath or declaration to overcome the patent or publication." Unrebutted Declarations have been submitted in this case, and are again submitted, and the Examiner must respond to them substantively

[Marino v. Hyatt Corporation; Morrill v. Tong; and Chelebda v.H.E. Fortuna & Brothers Inch].

In re Irons indicates that utility is a fact question [RAYTHEON COMPANY v. ROPER CORPORATION]. The submitted Declarations and the publications (including e.g. McKubre) are relevant as proof of utility. They demonstrate utility and operability at the time of the filing of this patent, and that it was, and is, important and of considerable utility.

The Examiner has rejected In re Ziegler [992 F.2d 1197, 1200, 26 USPQ2d 1600, 1603 (Fed. Cir. 1993)] which requires the Examiner accept Declarations as factual proof of utility.

The Examiner has rejected Marino v.Hyatt Corporation, 793 F.2d 427, 430 (1st Cir. 1986); Morrill v.Tong, 390 Mass. 1207 129 (1983); Chelebda v.H.E. Fortuna & Brothers Inch 609 F.2d 1022 (1st Cir. 1979); Lewis v. Bours, 119 Wn.2d 667, 670, 1992] which require the Examiner to assume that the Declarants' assertions are true.

The Examiner has rejected In re Ferens [417 F.2d 1072, 1074, 163 USPQ 609,611 (CCPA 1969)] which heralds that Applicant's submitted evidence, including Declarations, is sufficient.

The Examiner has rejected Ex parte Porter which requires that Declarations, submitted in response to the Examiner's comments, must be read, examined, and carefully considered.

The Examiner has rejected In re Morris [127 F.3d 1048, 1053-56, 44 USPQ2d 1023, 1027-30 (Fed. Cir. 1997)] which demands that the interpretation of operability and utility is predicated upon that which one who is skilled-in-the-art would reach. The Examiner must given the claims their broadest reasonable interpretation consistent with that which these skilled-in-the-art would reach.

The Examiner has rejected In re Oetiker [977 F.2d at 1445, 24 USPQ2d at 1444] which requires the Examiner substantively and fully respond to the probative witnesses, because Applicant has undertaken the full burden coming forward.

The Examiner has rejected Ex parte Gray [10 USPQ2d 1922, 1928 (Bd. Pat. App. & Inter. 1989)] which allows for Applicant's submitted expert testimony regarding operability and utility, beyond the detailed specification. The Examiner must give substantial weight to said Declarations about what they said about this invention compared to the Examiner's art regarding the work of others.

The Examiner has rejected In re Brana, 51 F.3d at 1566, 34 USPQ2d at 1441] which indicates Applicant's actions hereby meet the "burden shift ... to provide rebuttal evidence sufficient to convince such a person of the invention's asserted utility".

The Examiner has rejected In re Marzocchi and In re Oetiker which require responsive argument to the fully addressed criticism against the Examiner's unfounded notions. In re Marzocchi, 439 F.2d 220, 223, 169 USPQ 367, 369 (CCPA 1971)] declares that the Examiner cannot make the rejection he has unless he has reason to doubt the objective truth of the statements contained in the written description, here corroborated and supported by multiple Declarations.

ADDITIONAL REASON OVERCOMING THE EXAMINER'S POSITION REGARDING USC 101

Transformation for Inactive to Active is Patentable even without the Other Features

117. Utility is a fact question, and proof of utility is sufficient if it meets at least one stated objective. Here it does - a method to reveal information about the loading, *in situ*, and non-invasively. Furthermore, the present invention is useful, as described in the original specification in many fields which involve loading of metals by hydrogen, as corroborated in the Declarations by those skilled-in-the-art. This diversity of use is consistent with the directive of the court [In re Swartz 00-1107 and In re Swartz 00-1108].

Measurement and product formation involve transformation of a state or thing. Therefore, the Examiner has not followed the standards of review because such a two state method should be patentable based upon opinion of the Court.

"Transformation and reduction of an article "to a different state or thing" is the clue to the patentability of a process claim that does not include particular machines."

[GOTTSCHALK v. BENSON, 409 U.S. 63 (1972),
409 U.S. 63, No. 71-485]

"Industrial processes such as this ["a physical and chemical process (which involves) the transformation of an article into a different state or thing"] are the types which have historically been eligible to receive the protection of our patent laws. [450 U.S. 175, 185]"

[DIAMOND v. DIEHR, 450 U.S. 175 (1981)]

SECOND ADDITIONAL REASON OVERCOMING THE EXAMINER'S POSITION REGARDING USC 101

The Examiner Systematically Ignores Constitutional and Congressional Directive

118. The Examiner has rejected the controlling authority of Art. I, §8, cl. 8 which provides that

"Congress shall have Power (t)o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries"

Art. I, §8, cl. 8 empowers Congress in this matter. Yet, the Examiner has rejected that the US Congress has mandated progress.

"The patent laws (reflect) this Nation's deep-seated need to encourage progress."

[DIAMOND v. CHAKRABARTY, 447 U.S. 303 (1980),
447 U.S. 303, No. 79-136]

In the Office Communication [Exhibit "A"], the Examiner appears to have rejected that the US Congress has mandated encouragement of science, and the Office's actions are inconsistent both with the Patent Act of 1793, authored by Thomas Jefferson, which defined statutory subject matter as

"any new and useful art, machine, manufacture, or composition of matter"
Act of Feb. 21, 1793, l, 1 Stat. 319,

and with the Act which embodied Jefferson's philosophy that "ingenuity should receive a liberal encouragement." [447 U.S. 303, 309].

Therefore, because the Examiner appears to again ignore these matters, if in the future it becomes necessary to address compliance, standards of review, and recognition of receipt of said federal documents, applicant reserves the right to file a Complaint in federal court, including in the First Circuit, to address these cited matters involving said violations of the US Constitution and Office rules. Applicant submits these materials again, and hopes that this accountability matter will not be necessary.

Applicant hopes that, instead, the Office will henceforth respect the accuracy of peer-reviewed publications [including those published by the American Nuclear Society, and the long detailed record in this and the associated applications, along with the urgent and critical need for this country's judicial economy and energy security, and the belief that the Patent Office is compliant with its standards of review and consistent with both said Constitution and aid Congressional directive.

THIRD ADDITIONAL REASON OVERCOMING THE EXAMINER'S POSITION REGARDING USC 101

The Examiner Mistakes a Question of Fact for a Question of Law?

119. The Examiner improperly ignores and/or dismisses the Affiants' facts about the invention as "opinion". However, Declarants' statements and the peer-reviewed publications are Fact. The Applicant again asks the Office and Examiner (who refused to answer when asked on the telephone, as did his Supervisor):

Exactly how many Declarants does it take to overcome the Examiner's unsubstantiated rejection?

The answer is simple. The answer is quantitative. The answer is one (1).

The confusion here results from the fact that the Examiner has mistaken a question of fact for a question of law. The Examiner cannot dismiss Declarations improperly to "opinion"-status without an adequate explanation of how the Declarations failed to overcome the *prima facie* case initially established by the

Examiner: Thus, because utility is a fact question, and proof of utility is sufficient if it is convincing to one of ordinary skill in the art or if it meets at least one stated objective. In this case, the invention is convincing to several of ordinary skill in the art who have stated so at public meetings and the invention meets several stated objectives. The invention (structure, operation and composition) is defined by the claims and the original specification, and in this case they correctly define the invention, and the teachings have been corroborated, and therefore there is enablement (a question of law; *In re Fouche*, 439 F.2d 1237, 1243, 169 USPQ 429, 434, (CCPA 1971)). Enablement, utility, and operability are grounds for patentability.

The Examiner's error becomes further unlawful because the Examiner has also rejected *In re Alton* which requires that even the use of the words "it is my opinion" to preface what someone of ordinary skill in the art knows does not transform the factual statements contained in the declaration into opinion testimony.

In summary, in this case, the Applicant has set forth products and methods which have undergone peer-review, and as such do present utility within the meaning of 35 U.S.C. 101 [*Brenner v. Manson*, 148 U.S.P.Q. 689]. Therefore, in this case, utility under 101 is clearly shown. Given the utility Applicant respectfully requests reconsideration of the rejection of Claims 1-20 pursuant to U.S.C. 101.

CONCLUSION

120. Applicant taught in the original specification and claims how his apparatus works and claimed the invention.

Applicant has made a diligent effort to amend the claims of this application so that Claims 1-20 define a novel structure which is also submitted to render said claimed structure unobvious because it produces new and unexpected results.

The Applicant has explained in detail (supra) how the cited art is different and therefore produces a different result from the present invention. Applicant has given lists of additional critical features and components which distinguish Applicant's invention to operatively function in a different manner to the cited art. Therefore, the Applicant submits that any combination of the other cited art is an improper one, absent any showing in the references themselves that they can or should be so

combined. Neither of the references appears to suggests, or allude to, or teach a structure as defined by Claims 1-20. It appears that the figures and claims of the other cited art are intended to, and do, serve a different purpose than does the structure defined by the claims, and each of the cited art adds nothing of substance.

None of the references shows a method to reveal information about the loading, *in situ*, and non-invasively using a vibrating electrode, composed of a metal such as palladium which has internal filling ("loading") with hydrogen, which is monitored for its natural frequency.

None of the references shows these features.

Based upon the facts cited here, these Claims 1-20 are patentable over the cited references because the claims recite novel structure and thus are distinguished physically over every reference [Sec. 102], with physical distinctions which effect new and unexpected results, thereby indicating that the physical distinction is simply not obvious [Sec. 103].

121. As the original specification and claims teach, the invention solves the long-standing problem of monitoring loading, *in situ*, and non-invasively.

The Examiner should admit that said features are not "incredible" but can be elicited when using the teachings of the original specification and claims. Furthermore, there is documented existence of these reactions and the preferred environment in which the present invention does operate. The number of papers in this field confirms both the "existence" and "utility" of these phenomena and any associated technologies.

122. If the Examiner disagrees with overturning his improper rejection without foundation, then the Applicant requests specificity as to the reason to facilitate Appeal.

Specifically, Applicant requests that Examiner makes clear in the record which of these submitted averments by the Declarants regarding operability and utility were formally and substantially considered, and if the Examiner disputes them, exactly how he will have reached his conclusion.

If the Examiner dismisses, ignores, or relegates improperly to "opinion"-status, any or all of the submitted Declarations, the Applicant hereby explicitly requests an

adequate explanation of how the Declarations failed to overcome the prima facie case initially established by the Examiner. If the Examiner has anything which differs or rebuts anything in the original specification and claims -- or the Declarations and Exhibits, Applicant requests it be stated explicitly, with clear pointing to where in Applicant's publications or applications said rebuttal relates with specificity.

Request For Constructive Assistance

123. If, for any reason the claims of this application are not believed to be in full condition for allowance, the applicant respectfully requests the constructive assistance and suggestions of the Examiner in drafting one or more acceptable claims [pursuant to MPEP 707.07(j)] or in making constructive suggestions [pursuant to MPEP 706.03(d)] in order that this application can be placed in allowable condition as soon as possible and without the need for further proceedings.

124. Applicant respectfully notes that the U.S. Supreme Court has ruled that any pro se litigant is entitled to less stringent standards [U.S. Rep volume 404, pages 520-521 (72)].

WHEREFORE for the above reasons, including Declarations and the peer-reviewed published papers, the Applicant respectfully requests reconsideration and reversal of the Examiner's rejections of Claims 1-20, where Claims 1, 3-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Masaaki (JP-06018683), an unstated number of claims may have been indirectly rejected under 35 U.S.C. 102(b) "as being anticipated by Takumoto et al. (U.S. 4,016,052)", Claims "8-30 (sic)" are rejected under 35 U.S.C. 103(a) as being unpatentable over Takumoto et al. in view of either one of Rudd (4,554,836) or Sugimoto (U.S. 4,768,381)", Claims "8-30 (sic)" are rejected under 35 U.S.C. 103(a) as being unpatentable over Masaaki (JP-06018683) in view of any one of Wang et al. (U.S. 5,495,767), Steinlecher et al. (U.S. 5,883,715) or Zang et al. (U.S. 5,838,439), Claims 1, 3-7 are rejected under "35 U.S.C. 103(a)" as being "obvious over Takumoto et al. (U.S. 4,016,052)" but with no second art ever being mentioned, Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph for purportedly "being indefinite for failing to particularly point out and distinctly claim the subject matter", Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph for purportedly "failing to comply with the enablement requirement", and Claims 1-20 are rejected under 35 U.S.C. 101, based upon flawed reference to other art ("FP" or "F+P") even in the light of the Examiner's knowledge of previously-submitted Declarations of fact and accompanying Exhibits.

Applicant requests this reversal as is just and reasonable, or requests that the Examiner address each matter of law and error of fact cited herein with the precision and accuracy expected of those who operated under color of federal law.

Respectfully,


Mitchell R. Swartz, ScD, MD, EE

Certificate Of Mailing [37 CFR 1.8(a)]

October 22, 2003

To Whom it Does Concern:

I hereby certify that this correspondence will be deposited with the United States Postal Service by First Class Mail, postage prepaid, in an envelope addressed to
 "Office of the Clerk
 Board Of Patent Appeals
 c/o The Commissioner for Patents
 Alexandria, VA 22313-1450" on the date below.

Thank you.

Sincerely,
 October 22, 2003


 M.R. Swartz
 Weston, MA 02493

Serial no. 09/ 750, 480

October 22, 2003

In The Claims

The following claims have been amended as follows:

14. A process as in claim 8 wherein said means to drive said vibration comprises coupling said material to a second mass located external to said material.

14. (amended) A process as in claim 8 wherein said means to drive said vibration comprises coupling said loaded material as a first mass to a second mass located external to said material.

In The Specification

The following Equations have been numbered as follows:

On page 12

The equation of motion is

$$m \frac{d^2x}{dt^2} = -[k \bullet x] - [A \bullet b \bullet \frac{dx}{dt}] \quad [\text{Equation 1}]$$

where k is the first order spring constant characterizing the cathode, and b is the parameter relating frictional force exerted by the solution upon the cathode to the velocity of said cathode. By Stokes' law, the parameter "b" is closely related both to the viscosity of the solution in the reactor and the size of the cathode perpendicular to the velocity of said cathode ("A").

The solution to the equation of motion is that of a damped sinusoid, with a natural angular frequency of a damped oscillator.

$$\omega = \omega_0 - \left[\frac{b^2}{4m^2} \right] = \left[\frac{k}{m} \right] - \left[\frac{b^2}{4m^2} \right] \quad [\text{Equation 2}]$$

On page 13

A 'Quality factor', Q , can be derived as
where the expected natural frequency is :

$$\omega^2 = \omega_0^2 \left(1 - \frac{1}{4 Q^2} \right) \quad [\text{Equation 3}]$$



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EXAMINER

PALABRICA, RICARDO J.

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3641	

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EXHIBIT "A"



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/750,480 12/28/2000 Mitchell R. Swartz 7970

7590 09/26/2003

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EXAMINER

PALABRICA, RICARDO J.

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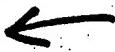
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EXHIBIT "B"

EXHIBIT "C"

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-6, 19, drawn to apparatus and method for producing a vibrational frequency of a cathode, classified in Class 376, subclass 100. 

II. Claim 7, drawn to a system to monitor nuclear fusion reactions that comprises microwave radiation, classified in Class 376, subclass 245.

III. Claims 8-9, 20-22, 25-26, drawn to apparatus and method for accelerating nuclear fusion reactions, classified in Class 376, subclass 100. 

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as subcombinations disclosed as useable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately useable. In the instant case, invention I has separate utility such as producing a vibrational frequency without using microwave radiation. Invention II has separate utility such as monitoring without a vibrational frequency of a cathode. See MPEP 806.05(d).

Inventions I and III are related as subcombinations disclosed as useable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately useable. In the instant case, invention I has separate utility such as producing a vibrational frequency without accelerating nuclear fusion reactions. Invention III has separate utility such as accelerating nuclear fusion reactions without a vibrational frequency of a cathode. See MPEP 806.05(d).

Inventions II and III are related as subcombinations disclosed as useable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately useable. In the instant case, invention II has separate utility such as monitoring without accelerating nuclear fusion reactions. Invention III has separate utility such as accelerating nuclear fusion reactions without using microwave radiation. See MPEP 806.05(d).